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The Traffic and Housing Problem in Rome.

TWENTY years ago speculators were ruined by over-building in Rome in anticipation of an expected influx of pilgrims on the occasion of the late Pope's jubilee. To-day the normal increase of population seems to have outgrown this provision; especially as so many old houses have been pulled down of recent years. The increase of population and the incidental increase of traffic raise the same problems in every growing town, but the questions seem to have become more acute in Rome than elsewhere.

The proceedings of the Municipality in this respect show a want of judgment which augurs badly for their other efforts. Instead of carrying out the approved suggestion for building the much-needed new quarters for the poor, a newer scheme has been propounded, which causes general consternation. The original idea was to build new houses first, and then pull down old ones according to the necessities of traffic. This plan was not sufficiently drastic for the new brooms who want to do both things at the same time. Instead of commissioning a local man to make the new suggestions, the Municipality turned to an engineer, Signor Sanjust of Milan. This gentleman, with more perception than his employers, asked for advice respecting the ancient monuments to be spared; but he was answered, "Plan first and decide afterwards."

The discussion of the plan which is to regulate future constructions has by no means ceased with its unanimous approbation by the Communal Council on December 1. One of the main reasons for which it was considered necessary to obtain a vote in its favour somewhat hastily was that until this had been given it was not possible to apply taxation; and another was that it was necessary to be able to control the construction of new buildings, so that they should take their places in the scheme. For the "Piano Regolatore" consists of two parts. To the first belong the proposals for various demolitions and reconstructions in the centre of Rome, so as to meet the exigencies of a largely increased traffic (and, it may be added, so as to give a better view of some of the new public buildings which have arisen since 1870). To the second belong the plans for the laying out of the new quarters which may be expected to arise, and which have in fact already begun to do so, in the immediate outskirts of the city.

This is not by any means the first of such plans; in fact, as regards the interior of the city, it supersedes the plan of 1883, which has been in force until this moment, but which hardly touched the portion of the city outside the walls; while a plan was prepared in 1906 dealing with the whole question, one of the main defects of which was that it rested, as regarded the outskirts, upon an entirely inadequate map, upon which the heights were not properly indicated. Too much was therefore sacrificed to straight lines, especially ih the suburbs, and too little account taken of the conditions of the ground. The present plan is not open to such objections, inasmuch as before it was undertaken a proper survey was made, on the scale of about 1 ft. to a mile (1:5,000), with contours showing every metre; and, as its author, Signor Sanjust, claims, he has taken far more notice of the actual configuration of the ground than his predecessors; avoiding the filling up of valleys and levelling down of hills, but rather making use of the natural features both to obtain pleasing effects and to secure a proper fall for drainage.

The second part of his task he has therefore accomplished with some success, as might have been expected from an engineer of Milanese training and Sardinian extraction, though, as a distinguished Christian archæologist has pointed out, his deficient local knowledge has led him to select in some cases sites immediately above catacombs, which would probably fall in if built over. But on the whole the planning of the future new quarters in the outskirts seems to be quite well thought out, if only the character of the buildings themselves (into which he does not enter to any extent) be suitable, and less inartistic than some of the barrack-like constructions which are at present to be seen in the suburbs. And having regard to the present urgent need for more houses, which has led to an enormous rise in the rents, and a positive lack of habitations for the poorer classes (some of whom are camped in shanties formed of petroleum tins, while others live in huts under the shelter of the Aurelian walls), it is only to be hoped that the construction of some of them will proceed apace.

But it is with the first part of his plan, that which deals with the centre of Rome as it already exists, that we are mainly concerned, and with it that most fault has been found. Besides the demolitions already in progress, and which (despite the need for more houses) both the Government and the Municipality seem to consider of far greater urgency than the construction of quarters for the inhabitants of Rome, many of whom are positively houseless, Signor Sanjust recommends a good many more, some of them necessary, some advisable, and others inadvisable. For the demolitions which have been accomplished or which still remain to be undertaken,

in order to clear a huge piazza in front of the monument to Victor Emanuel II., Signor Sanjust is of course in no way responsible; indeed, regrettable as they are, they were an inevitable consequence of the choice of the site. But inasmuch as, after long years of inactivity, work on this huge structure was not so very long ago recommenced, and is now being actively carried on, in the hope that it may in the main be completed for the jubilee of the Italian kingdom in 1911, it may not be out of place to speak of it for a moment.

The monument will consist of an enormous portico—so high as to tower above the roof of the church of S. Maria in Aracœli—in front of which descend flights of steps. A pedestal in the centre is to be occupied by a statue of the King to whom it is dedicated, and the whole is to be decorated with various sculptures. So far, so good; but when we remember that it is planted upon one side of the Capitoline Hill, that it will inevitably dwarf the Piazza del Campidoglio, the centre of the municipal life of Rome from the Middle Ages until the present day (with which, after all, it has no historical connexion); that mediæval buildings of considerable interest were sacrificed to obtain a site for it; that the wing of the Palazzo di Venezia, known as the "Palazzetto," will have to be moved to the other side of the Piazza di S. Marco and reconstructed on a site recently prepared by further demolitions of houses, the inhabitants of whom have found shelter where they may—when we realise that the huge square thus formed in front of the monument will have adequate shelter neither from the sun in summer nor from the wind in winter, then the magnitude of the error made some twenty-five years ago becomes apparent.

There is a tendency in the official Italy of to-day to sacrifice all memories of an anything but inglorious historic past to the recording of the last and what may be the greatest period of all, but which, even so, has not the right to claim exclusive recognition. When what every traveller knows as the Corso and the Villa Borghese have officially been renamed after the universally deplored King Humbert; when the enlarged Piazza di Venezia is in serious danger of becoming the "Foro Italico," while the newest streets of the new quarters are named after the kings of Alba Longa, one seems to witness the inversion of the historic sense. All honour to the Italians of the last half of the XIXth century; but they made the *new* Rome, not the old; and it is in the new Rome that they should find their appropriate commemoration, not by the obliteration in the old city of some of the not least precious pages of its history.

While in the main Signor Sanjust's plan seems a good one, especially as regards the configuration of the ground, his ignorance of the local architecture would lead to much wanton destruction. A short while ago a new thoroughfare was suggested to cross the Piazza Navona; now it is the Via dei Coronari which is to be sacrificed to create a complement to the Corso Vittorio Emanuele on the far side of the Piazza. Why pull down these interesting XIVth century houses (one of which Raphael is supposed to have inhabited), when the traffic can be so easily regulated by keeping one street for up and another next it for down traffic? In Trastevere, the historic covered gallery connecting the Vatican with the Castel St. Angelo is also threatened, in spite of the facilities for traffic offered by its arches. And, after all, what traffic is there here? There are plenty of cross streets already. The real want, less felt here than elsewhere, is a linking up of short streets rather than the broadening of longer ones. It must be remembered that narrow streets keep out the sun, which is a factor to be reckoned with in Italy, where broad thoroughfares are to be deprecated.

But the worst suggestion is the desecration of the Villa Medici by cutting a wide road through its gardens to connect the Pincio with the Porta Pinciana, the garden of the Sacré Cœur being also involved. The mere suggestion makes one doubt the sanity of everyone concerned. New roads imply present or future traffic, and the steep zigzag down *from* the Pincio utterly precludes the possibility of any heavier traffic than that of victorias and perambulators. One can hardly imagine a new thoroughfare being laid out to facilitate such frivolous traffic—though it is commonly reported that a recent breach in the Aurelian Wall was made for the benefit of two English ladies who wished for a more direct route between their homes! A whole new quarter is certainly arising beyond the Porta Pinciana, but a small cross street from the south side of the Trinita dei Monti could cut across towards the Via Ludovisi and relieve the Via Sistina, if indeed it can be said to need relief.

One comfort is the thought that Signor Sanjust's origin from Milan and Sardinia almost precludes the possibility of his scheme being fully carried out—feeling against a "provincial" will run too high. The cost will also be a determining factor, though one could wish for the proposed isolation of the Theatre of Marcellus and the Mausoleum of Augustus.

NOTES.

Building Operations Bill.

THE "Building Operations and Engineering Works" Bill is dead, and cannot be said to have deserved a better fate. Administratively unsound, although its object was good, it stood open to criticism from its birth, and did not meet it bravely. On no occasion has the Home Secretary taken it upon himself to explain his administrative effort. It was withdrawn, together with other Bills, early in the month, ostensibly because the closing weeks of the Sessions were already filled with what was considered more important work. This may be so, but doubtless the criticism which followed the Bill's publication during the summer added its weight to the decision that it should be dropped. Its successor will now be awaited with interest. The draft regulations for the trade apparently cannot be proceeded with unless some such Act is passed; and for these the workmen are anxiously waiting. The master builders are also prepared to fit in with reasonable demands; and, generally speaking, the time may be considered ripe for the introduction of such administrative measures. The new Bill must, however, clear the obstacles presented in the last. Dual inspection is wasteful, and the control of a central authority wise. It should not be beyond the powers of the Home Office to remove the first and provide the second.

Labour Statistics.

THE Abstract of Labour Statistics for the year 1906–7 contains a mass of statistical information of general interest, but we will only refer to one or two matters affecting the building trade. The ten years' record of unemployment amongst trade union members, although the statistics are confined to plumbers and carpenters, gives some idea of the depression in this industry. In 1898 the yearly mean of those unemployed was 1·3 per cent., but the percentage increased year by year to 1905, when it reached 8·3 per cent., and in 1907 it stood at 6·7 per cent. During the first six years of this period the changes in rates of wages in the building trade showed on the balance an increase, but in the following three years reductions preponderated, although there was a slight increase in 1907. The hours of labour during the same period have steadily decreased. The figures as to trade disputes are given from the year 1893, and since the year 1897 the number of disputes has steadily decreased, and, as we have often had occasion to remark, considering the depressed condition of the trade this fact reflects the greatest credit on all connected with it. In the year 1897 there were 193 disputes affecting directly and indirectly 15,047 workpeople, with an aggregate duration of 353,348 working days, in 1907 there were but twenty-two disputes affecting only 1,230 workpeople with an aggregate duration of but 23,128 working days. The disputes in the above period seem never to have been very serious except in the year 1896, when 171 disputes affected 33,312 workpeople and occupied 1,060,227 working days. Conciliation has no doubt exerted an important influence in bringing about the state of things disclosed by the above figures. In 1897 only seven disputes were settled by permanent Conciliation Boards, but in 1907 out of fifty-eight cases considered by Conciliation and Arbitration Boards forty-seven cases were settled. As regards accidents, the Factory Acts have affected the figures so that comparison with former years is misleading, and since 1904 accidents on buildings have been grouped with accidents in factories. In 1904 2,431 non-fatal accidents were reported on buildings and 121 fatal cases. In 1907 131 persons were killed. Under industrial diseases in 1906 there were sixteen cases of lead poisoning and four deaths in plumbing and soldering, but these figures do not include cases amongst house painters and plumbers, as these are not reportable under the Factory Acts. They, however, appear to be serious, as in 1906 there were 181 cases and thirty-six deaths, and in 1904 as many as 227 cases were reported, whilst others may have failed to come to light.

Sanitary Law.

In a paper recently read at a sessional meeting of the Institute of Sanitary Engineers, Mr. H. W. Davies gave an interesting résumé of the history of legislation relating to sanitation and public health, both generally and in relation to the metropolis. Mr. Davies shows that before the year 1846 no attempt was made to secure any uniformity in legislation respecting sanitary conditions, and he describes the chaotic condition of affairs. He then briefly summarises the enactments that have been passed to remedy this state of things, and he concludes his paper by observing that much remains to be done in the metropolitan area; overcrowding must be absolutely abolished and a central health authority for London must be established. The perusal of the history of legislation on these subjects shows that, although an improvement has been effected in sanitary conditions in the past sixty years which is most satisfactory, the law as it stands at present is still in a chaotic condition and sadly needs codification. The law relating to matters of everyday life should be simple, complete, and easily understood, and capable of being administered by ordinarily competent persons. Since the year 1875 no serious attempt has been made to codify the law relating to public health; each successive Government adds a statute or two to those already dealing with the subject, but declines to undertake the task of producing a domestic code. Sometimes a statute has been described as "An Act to consolidate and amend the law," but the consolidation has been chiefly confined to the title. The Public Health (London) Act, 1891, is a flagrant example of this. Seeing that the authorities have been completely changed since the leading statutes, both relating to London and the country generally, came into force, and that local self-government really dates from the year 1888, it is the more surprising that the local authorities should have been left to grope their way through a number of detached and incomprehensible statutes.

Chicago Building Regulations.

As it now stands the Chicago Building Code is said to be in such a form as to make impossible the correct architectural and structural design of a large building without violating some of the regulations. Soon after the Iroquois Theatre fire considerable modifications were made, and at that time various impracticable clauses found their way into the code. Subsequent changes have had the effect of complicating matters, and the regulations to-day are both contradictory and inadequate. It is satisfactory to learn that revision has been authorised by the Mayor of Chicago. As the subject can be dealt with by the municipal authorities there is reason for supposing that a reasonable set of regulations will be formulated without unnecessary delay. It would be a happy thing for London if the power to make similar rules were delegated to the London County Council and other bodies concerned. Our Parliamentary steam-hammer does far too much nut-cracking, and even if relieved of purely municipal duties would not have too much time for Imperial and national work.

Methods of Charging for Electricity.

A timely paper on "Domestic Electricity Supply as Affected by Tariffs" has recently been read by Mr. Cooper to the Institution of Electrical Engineers, both in London and at the Glasgow local section. He lays stress on the fact that almost all existing systems of charging have discouraged the use of electricity for heating and cooking because they were devised primarily for consumers requiring light. He points out that the load on any station must consist of a lighting load superimposed on a power load, and no tariff will eliminate the excessive demand on the station for a short period every week-day evening. By encouraging the heating load, however, this "peak" load becomes relatively much less important. He suggests that the special expense due to the peak load should be met by a yearly or quarterly payment proportional to the number of lamps connected, and the charge for current should be reduced to a penny per unit. This system, first suggested by the late Dr. Hopkinson, was tried at Manchester many years ago, but was abandoned—possibly because it was before its time. It has the great advantage that it does not involve the necessity of duplicate wiring and two meters. On the other hand, it would tend to restrict the number of lamps that a consumer would install in his house and so take away one of the great advantages of electric lighting. Electrical wiring contractors would also be adversely affected. The discussions on the paper prove that the great majority of supply engineers object to a flat rate system of charging. In our opinion the flat rate system is the most attractive to the ordinary consumer. With all other systems he always has the suspicion that he is being treated inequitably and that he is paying part of the cost of supplying his neighbour with the electric light, although in reality the risk of this is greater when all pay the same rate. We thoroughly agree with Mr. Cooper that electricians must solve the problem of supplying electricity for heating purposes at a much cheaper rate than for lighting.

Blackwell's Island Bridge, New York.

American bridge engineers continue to provide food for reflection, the latest contribution being that constituted by the design of the great cantilever bridge across the East River at a cost of nearly five millions sterling. In consequence of the Quebec disaster attention was naturally directed to the kindred structure in New York, and finally Professor W. H. Burr and Messrs. Boller & Hodge were commissioned to make investigation. From their reports we learn that if the bridge were subjected to the loads for which it was calculated, the strains on some members would enormously exceed safe limits, the excess in the case of one member being 47 per cent. above the safety point. Moreover, we are told that "instead of being able to carry a congested load of 16,000 lb. per lineal foot the bridge as it stands to-day can carry a load only of 6,000 lb. per lineal foot," and that "even this live load can be safely allowed on the bridge, only if the traffic is carefully regulated by the police." In the circumstances it seems that the only way of reducing the load to safe limits will be to abandon the four elevated tracks intended to serve as a connecting link between the electric railway systems of New York and outlying districts, thus greatly reducing the utility of the bridge. A very costly blunder has been perpetrated by the Bridge Department of New York, and it is a very good thing that the inadequacy of their design has been demonstrated in time to prevent an appalling catastrophe.

The Mile End Surface Contact Tramways.

In a report by the Highways Committee of the London County Council it is stated that during the experimental working of the surface contact system there have been 927 occasions recorded on which alarm indicators on the cars showed that studs remained alive immediately after the car left the studs. Of these faults 728 cleared themselves—possibly almost instantaneously, but 185 of them remained until the mechanism was persuaded to work by hammering, and seven studs could not be isolated by external manipulation. The record is disappointing, and we imagine that the patentees of the system adopted must feel rather unhappy about it. The worst thing about most surface contact systems is that the mechanism relied upon for cutting off the current from studs usually embodies springs or weighted levers, which sometimes fail to act—no doubt quite unjustifiably—in the manner intended. There ought to be no real difficulty in devising some positive method of making the car itself cut off the current just as easily as it switches the current on. The abolition of dangerous overhead wires and costly conduits is so clearly to be desired that we hope the advocates of surface contact traction will persevere in their efforts to arrive at some acceptable solution of the problem.

Housing at Eastleigh.

Owing to the removal of the engineering works of the London and South-Western Railway from Nine Elms to Eastleigh a somewhat extensive scheme of re-housing is in progress at the latter place. The new works will cover about ten acres of land and will provide employment for nearly 1,500 men, representing a much larger population for whom accommodation is necessary. Unfortunately, those who are the happy possessors of land in the district do not seem inclined to sell their property at low rates. Instead of being satisfied with the former value of some 40*l.* an acre, they now demand as much as 600*l.* an acre. The railway company probably consider this very selfish and wrong, but it is not quite easy to blame the landowners, who are only human after all. If the company had been wise they would have taken the precaution to buy a large enough area of land for housing purposes before commencing the projected removal of their works. It is a pity that the families about to

settle in Eastleigh should be penalised in the form of unnecessarily high rents in return for the benefits they will confer on the district.

Small Holdings in London.

THE Vacant Land Cultivation Society, which Mr. Joseph Fels established last year, are desirous of obtaining further offers of land to be cultivated for the growth of produce until the plots are needed for other purposes by the owners. The society have thus found employment for 250 men upon plots in Fulham, Putney, Canning Town, and Balham, and have secured the loan of eight acres in Silvertown. The cultivators, being for the greater number ordinary casual labourers, are helped with 10s., tools, and manure, in each instance; the crop of vegetables yields upon an average 40*l.* per acre. The London County Council have let some 36 acres of surplus lands in West Ham, East Ham, and Greenwich as allotments, and 54 acres in small holdings in West Norwood, Plumstead, and Catford. They have received in the current year applications for a total area exceeding 300 acres.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held at No. 9, Conduit-street, W., on Monday, Mr. Ernest George (President) in the chair.

Mr. Alex. Graham (Hon. Sec.) announced, with regret, the death of Mr. John Peter, elected an associate in 1888.

The Elements of Design in Internal Decoration.

Mr. T. R. Spence then read a paper on "The Elements of Design in Internal Decoration," of which the following is an abstract:—

Having referred to examples of the decorator's art which have come down to us from the past, the author said there was no reason why we should be complete slaves to their magnificent domination. Neither should we in any way despise the triumphs in line, form, or colour on which the ancients have set the seal of beauty. From the savage races to those which have attained to intellectual and artistic fulness we find an equal instinct and love for colour and its disposition in beautiful shapes. Why should we of the XXth century be denied crystallisation of such figments of beauty in colour and shapes as may have drifted into the net of our most fervid moods—moods from which invention springs and an intenser clearness of vision of things lovely in themselves, of distinction in style, and sympathy with the architect's creation? In the first place there is the decoration which is entirely the architect's achievement, in more or less permanent materials, forming not only the anatomy, but much of the clothing of his work—the design and disposition, for instance, of such materials as wood, stone, metal, marble, tiles, glass, gesso, mosaic, etc.—the unity of all this expressing his own particular art. From this single partnership great things have been accomplished, which are treasured as ideals by most students.

The olive, the laurel, the pomegranate, the orange, the vine and its leafage, etc.—the curving festoons for horizontal shapes, the pendant for vertical shapes, and the circular wreath for telling expression at a distance—all these have had a long domination in architecture, and go to prove that there is a limited number of things in nature that can be used with success. In the way of natural forms as decorative elements, the Egyptians have shown what can be done with the lotus, the cane, and binding bands of reeds. The festoon has become in careless hands a very baggy sort of detail, generally dubbed the swag, a term which rightly indicates its debasement.

The author deprecated the present fashion of painting nearly everything white. The use of white on all occasions becomes extremely monotonous, indicates a certain poverty of thought, and belongs to the transitory interest of things easily done. The full and sumptuous quality of colour in decoration seems the rarest and most difficult to attain, the predominance of primaries being essential: such schemes maintain their interest longest, mellowing rather than deteriorating in tone. As decoration the greatest triumphs in colour and design have been set within the compass of a frame; and with such examples as an incentive the standard of our work should reach higher. Lord Leighton in his "Daphnephoria" has left us one of the great decorative pictures of the world, containing as it does much of the finest elements of decoration in the procession of singing children, youths, and women, carrying the beautiful symbols of their faith through the olive-groves, beyond which is seen the city of the violet crown set against the Attic sky. The landscape alone is a great decoration.

Decoration on the higher scale seems a thing of the past. What little that is done tends rather to technique—that is, a kind of swagger of the brush—rather than to an effort to create pictorial decoration which shall be an embodiment of things beautiful. The sincerity and reverence of the primitives, though lame in technique from a modern point of view, have a more lasting interest.

The author discussed the merits and defects of various decorative materials—marble, bronze, copper, wrought-iron, etc.—and dealt at length with the treatment of gesso, gilding, friezes, carved wood, wall-coverings, heraldry, glass, sculpture, painter's work and materials, etc.

To the author there seemed great possibilities for architecture set within architecture as an adjunct in decoration. Architecture is really the basis and beginning of design, and that which it has accomplished in the creation of forms, contours, disposition of vertical and horizontal lines cannot be overlooked by those who set out to give us a great pictorial or decorative composition. When speaking of architecture within architecture the author explained that he was thinking of the beauty and fitness of many cities (if painted with a decorator's instinct) to fill with success rectangular spaces, either vertical or horizontal, which may be appointed by the architect. These cities as subjects required careful selection. Some were decorative in themselves—for instance, Jerusalem, from the hill of Scopus behind the Mount of Olives; Athens, from Lycabettus set against the Saronic Gulf and Peloponnesian mountains; Milan set within the Lombard plain from Bergamo; Saragossa, with the steely blue of the Pyrenees behind, as seen from the south. The point of sight should not be near, so that due justice would be given to the harmonies of the atmosphere in which they are enfolded. Accuracy of detail is important, but not so much so as a grasp of the fine contours and colour gradations in a big sort of way.

Landscape, too, has great decorative possibilities. There is at present a tendency to use so-called classic landscapes (made at home) in which hard, strongly outlined, rolling clouds, doubtful classic buildings, and large trees are set in vistas of brown tones only. A real classic landscape is a great revelation of its fitness for decoration. In the land where classic art had its birth very little rearrangement is needed. There in itself one finds composition tones and colour harmonies. Planes and values are all in order, making a refulgent yet sober composition.

The author felt that there was an opportunity now for a great Renaissance in decorative design. Donatello, Mino de Fiesole, and other Italians with their genius achieved a personal and perfect culmination from the study of the rather limited Roman remains that were within reach. They were essentially modern, and were influenced by the fashion of the moment and ready to embody any new thought for the glorification of their work. Now, in the XXth century, our treasures of Greek art are largely multiplied and easily available in the British Museum, and in the incomparable Parthenon frieze, the decorative bronze ornaments, coins, and hundreds of other jewels of art are shown the best quality of dignity and restraint in design for students who have the fervour and ambition to recreate a style that shall be on a par with, yet quite distinct from, the XIVth century Italians, and of a freshness and interest as cannot be evolved from a period of decadence.

The author disclaimed any intention of laying down laws for the treatment of any department, as the dimensions, schemes of lighting, etc. His impression was that design had its birth from vague memories of beautiful things seen; if careful notes were made for reference in the actual work of creation the operation meant death to the imagination.

Ornament and the spaces for its disposition needed new thoughts and careful consideration as to the disposition of lines and areas—of the separate details of the ornament—and the amount and variety of decoration already achieved by the architect in the use of mouldings, modelled forms, etc. The battle could only be fought out on the walls or spaces allotted for treatment to the decorator by the architect, and to this there was no royal road to the creation of any work of art. Consequently such creations could not grow into shape without much tribulation and strained endeavour.

Mr. R. Anning Bell said that Mr. Spence had given a general sketch of the history of decorative art which was most interesting, but the range was so great that it was impossible to make a general criticism on it. Personally, he would have liked to have heard a little more about the elements of decorated design—as to how one should approach it. The study of the ancient work was undoubtedly one of the greatest helps they could have, but there were perhaps general principles which might also help them. One matter which was greatly talked about and which all agreed was an important essential was, of course, the element of scale. Everyone in the room would agree that scale was essential evidence of good design, but the sculptor or painter, speaking of the architect, and the architect speaking of the sculptor or painter, in his experience practically always said of the other, "He is a very good chap, but he has no idea of scale." Was there any sort of possibility that they could agree about scale? No two people seemed now to agree as to what scale was in relation to anything else. If a sculptor or painter was employed to design figure work, they found that one architect's idea of scale was quite different to that of another, and this bothered them a great deal. After working for one man one came to agree as to what was about the right scale for a particular work; but the next man they worked for had quite different ideas and could show good reasons for thinking he was right. Was there anything more than fancy or personal predilection for governing scale, or was it possible for them to find some common ground? If architects would take the matter up and try to find some sort of reason for scale, such as to whether it was to be governed by the distance above ground, the distance of the spectator from the plane in which the object was placed, or the distance from other objects on the same plane, the size of the windows and mouldings, and things like that, then perhaps they might have a little more guidance. Some study might be made of examples which all agreed were good in scale, and these might be classified and reasons given why this or that example was particularly

good in scale. In this way they might get some sort of basis to work upon when approaching a problem. Of course, one never got the same conditions and the same proportions to work on twice, and in new work one seldom had the same things to do as in the old. Consequently the decorator had to be guided by his personal taste, and the sculptor and painter naturally liked to give his own work at least its due importance, whereas the architect often looked on the ornamentation as being useful to set off something else. They thus looked at the question from different attitudes, and if there was anything on which they could both agree in approaching the problem, they would both be a little happier and there would not be so many futile sketches made at the beginning of a work.

Professor R. Blomfield, A.R.A., said the paper was one which they would all take to heart and profit by. It was, however, difficult to discuss, as it was so full of detail, and Mr. Spence had set so many hares running that it was very hard to know which to tack on to. The author had alluded to the fondness of architects for white paint, and of course they had been told that white paint was the refuge of the destitute. As a matter of fact, he thought the use of white paint was to a very large extent dictated to them by the patrons of the arts. The patron of the arts wanted panel-pictures and isolated bits of sculpture and things of that sort, and there was no doubt but that white paint was a wonderful thing for showing off these things, so that he did not think it was entirely the architect's fault. On the other hand, he must put in a word for the use of white paint, as it was an admirable background. Mr. Spence went on to brown panelling, and thought that was *riste* and monotonous. The architect was a very modest man and always kept himself in the background as much as he could, but when such men as Wren used it it was as part of a great scheme to be judged as a whole. Mr. Spence mentioned Wren with great admiration, but he might also have mentioned Wren's predecessor, Inigo Jones, who was a master of the organisation of the arts. At Wilton they found a wonderful example of the decoration of the time of Charles I., controlled by a great English architect. Mr. Spence had quoted the palace of Alcinous in the "Odyssey," but he did not think they ought to go in the slightest degree by what poets or literary men said about the arts. It was one of the ingrained fallacies in English culture to imagine that because the poet wrote of some wonderful palace or work of art the artist was to interpret that at once and literally, but there was the very old distinction laid down years ago that the poet made his impact by consecutive effects, and the artist by momentary effects. When a person came into a room the effect came through the eyes at once, but in a poem it was a long cumulative affair. It was an important distinction which they must bear in mind. Critics were very fond of criticising painting and sculpture and architecture from the point of view of literature, but this was a very great mistake, and they should never encourage it by quoting poets with regard to the arts. There was a much larger question for architects, which was as to what their relations to the sister arts were in these matters. Some years ago it was thought that they would serve architecture by endeavouring to make themselves painters and sculptors, metal-workers, and various other things, but that, he thought, had been proved to be the wrong tack. They did not make themselves good craftsmen, and they ceased to be architects. The question was as to how they were going to shape towards architecture and what exactly were the relations of the sister arts. He did not think that the architect should take a personal part in the sense of an executant. What they had to do was to try to think out the relation of the arts, and endeavour to the best of their ability to help their colleagues when they were good enough to work with them. They could help them in the all-important point of scale in the decoration of buildings. He thought the position of the architect was not to take a personal part, but to provide buildings in which the artists could fittingly place their works. He had been sitting next to Professor Moira and asked him what he thought about it, and he replied, "For God's sake, give us elbow-room." He thought that hit the nail on the head. Let the architect give plain walls, good proportion, good simple work, room in which the artists might turn round and be a credit to themselves and the architect. Mr. Anning Bell had raised the question of scale, which he felt was one that none of them could ever answer completely. He came across a book some time ago on "Canons of Proportion," and he was afraid that for that purpose it was beside the mark. They all had their methods, but in the end came to the conclusion that there was no abstract scale to lay down to fit everything. Mr. Bell said that one man might consider a scale all right and another man might think it all wrong, and he asked what was he to do. Personally, he did not feel that that was the way to look at it. He thought that architect's design should be an organic conception in which each art fell into its place. The painter or the sculptor might suggest something which was a very beautiful thing of itself, but it was for the architect to say whether that could upset the scale of his building, in that it struck a wrong note and was different to the idea he had in his mind. It was in this sense that the architect's work was architecture, and it was all important that this view should govern their attitude to the arts.

Mr. Geo. Hubbard remarked that on the subject of the abused white paint he did not think they all appreciated why it appealed to them. To his mind, white paint should always be largely used, because it was the natural standard by which they could measure the value of any other colour. Juxtaposition of colours created a certain confusion in the mind, but if they had the colour adjacent to white they could clearly see. If there was plenty of white in the decoration of the ceilings and architraves, and so on, they had a standard always before them by which they could measure any other colour which might be used in the decoration.

Professor Moira said that when one came into a room like that in which they were assembled, which was so interesting in its decoration, it left little to say, but one or two questions had been raised which were rather important. Mr. Anning Bell's argument as to scale was a little unnecessary, because it seemed to him that a man who was going to be a decorator should realise to a certain extent the scale of the building even from the drawings which were given him by the architect. Again, Mr. Spencer talked about isolated pieces. Of course, they were very fine, but how did they go with their surroundings? Nowadays they had to consider buildings which were erected, decorated, and practically finished in a short space of time. They were living in the motor-car period, when things were commenced and carried through, and it was different from the building of the past, when things were gradually developed. Wherefore they had got to design their figure-decoration, or whatever it was, to the building, and it had to be part and parcel of it. That was the point they ought very seriously to consider. If he commenced to talk of methods and material they might stay there all night.

Mr. J. D. Crace proposed a vote of thanks to the author, and said he had been trying to bring back his mind for the last half-hour to the title of the paper, because they seemed to have got a long distance away from where they started, *i.e.*, decoration in the sense of colour. He did not know why it was, but all the papers he had ever heard read on the subject of colour decoration in that room always seemed to drift away from the point of what was excellent for a building into various details and into different methods and processes and dodges for the execution of decorative work in various materials. It appeared to him that what they should discuss was as to what really were the things which made for successful decoration in the sense of doing good to the building. He noticed that at one point Mr. Spence mentioned that decoration should be executed in the spaces set apart for it by the architect. He could not imagine anything being absolutely more ruinous to the effect of a building than having individual spaces set aside in different parts of a building, or in one part, for decoration, and all the rest held in reserve. The author also mentioned many Italian painters whose work was decorative, and had shown many examples on the screen. It was true that these paintings were decorative in themselves, but they did not constitute decoration. Mr. Spence left out of account that these paintings were, almost without exception, in settings which meant decoration—they constituted the pictorial decoration part of the building; the surrounding ornamentation carried it on into the building itself. He had brought a few drawings and sketches to show what he meant when he spoke of welding the painting to the building. The beautiful paintings by Pinturicchio in the library of the Cathedral of Siena had been written about, but very few people troubled to notice how they were part of the whole. If they looked at the sketches, it would be noticed that the blue pilasters were not put in because the artist had a fancy for blue, but because they led up to the blue and gold in the ceiling. In the sketch before them it would be seen that the decorative painting was continued up into the roof. It was not merely putting a decorative painting into a space allotted by the architect: the architect should decide what decoration he wanted, and then decorate the building, and not particular spaces in it. Another point touched upon was the architectural accessories to the paintings themselves, and that performed a most interesting and valuable function in connecting the painting with the surrounding structure. Pinturicchio did not put his pictures into a white space. A speaker referred to the value of white in showing off colour, but that was what the old men avoided. They saw the same thing in the work of Ghirlandaio. Titian, again, did not go and paint his pictures on a white ceiling and put a gold moulding round it and say how the white showed up the colour; but he made the whole thing a decoration. It was the tendency to isolate fragments of decoration, which was ruin to the decorative idea. The picture might be a decoration of itself, but if it was not in some way affianced to the building it would never be really decorative. If they took the Italian decorators from the XIVth to the XVIth centuries, they found they invariably put their decorative effect into decoration as a whole. Even Tintoretto, who painted on such an enormous scale and with such boldness, had surrounded his finest work with most elaborate decoration. He entirely differed from the idea of white paint. First, white was very bad for the eyes, because it was always exercising the same nerves, whereas if they had harmony of colour the eye was constantly relieved. He thought there was one great explanation of the popularity of white, which was that it was the last refuge of the destitute.

The Chairman observed that no doubt the reason why white was so resorted to was because it was the cheapest and simplest form of treatment, and with it they could avoid anything which was very vicious. To have pictures and other things picked out by white surroundings was very trying, and he preferred lower tones.

The resolution having been carried,

Mr. Spence said he thought Mr. Crace had somewhat misunderstood him about spaces. A scheme of decoration was very much like

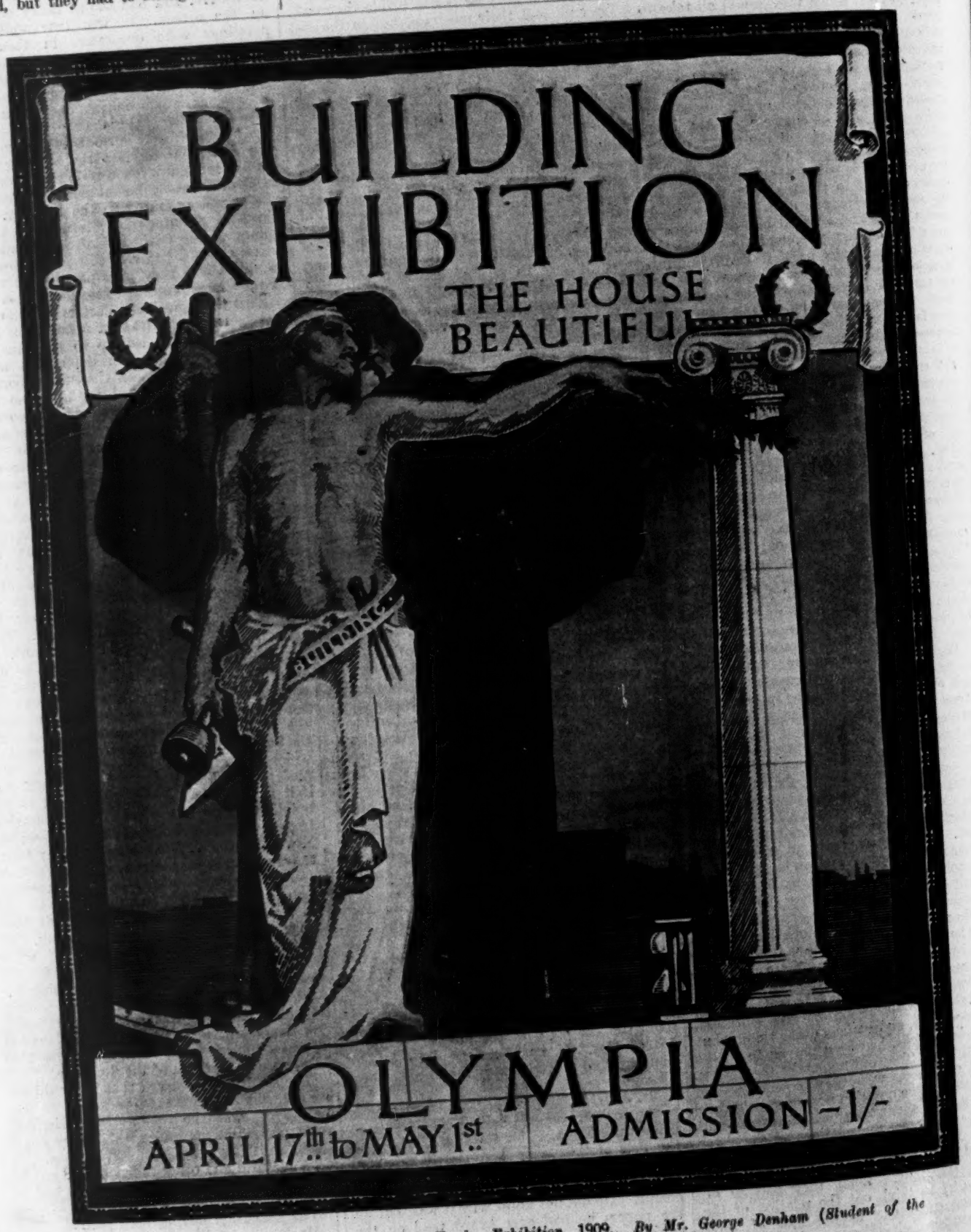
painting a picture—they wanted the whole thing set out and the colours put on and then accentuated or eliminated just as they felt. He did feel, however, that what was placed in spaces should be decorative in itself; it should have the elements of decoration, i.e., feeling for style. That was a very difficult thing to explain. He really did not mean that the architect should allocate a certain number of spaces, but might allot the interior for the artist to do what he felt was best. The decorative work might perhaps be carried out in the way that Phil May did his drawings—he accentuated or eliminated until he got the perfect thing expressed. In the same way no scheme of decoration could be perfectly laid down before they commenced, but they had to strengthen it and do all kinds of things until they reached a harmonious whole.

The Chairman announced that the next meeting, on January 4, would be for the election of members and the transaction of other business.

THE ROYAL ACADEMY STUDENTS' DESIGNS.

THE Travelling Studentship in Architecture at the Royal Academy has been gained by Mr. Louis de Soissons, the subject given being "An Open-air Bath of Architectural Character Situated in a Public Park"; a fascinating subject, which Mr. de Soissons has treated well. The bath is a large pond of elliptical shape, with an architectural erection around it, the centre of which is emphasised by a large columned portico; the whole treated in a restrained classic style suitable to the situation. The design numbered 150 showed a very good plan, perhaps even better in an architectural sense than the prize design, but the architectural erection around it was too fussy and pretentious. In connexion with park scenery nothing goes better than the severe lines and broad surfaces of classic architecture.

The silver medal for "An architectural design with coloured decoration" was awarded to Mr. Alan Binning, for a drawing of part of an interior of a domed chapel with a Corinthian order, which showed more diligence than inspiration. Two silver medals were awarded for drawings of the



Prize Design for Poster for the Building Trades Exhibition, 1909. By Mr. George Denham (Student of the Royal College of Art).

Strand entrance to Somerset House, the first medal to Mr. R. B. Ling, the second to Mr. H. Quilter.

For a "Set of drawings of an architectural design" the first prize (15*l.*) was awarded to Mr. P. E. Webb; the subject was an arcaded Park Entrance, treated in a rather French classic style, with a massive rusticated pylon at each side, decorated with a circular window from which heavy sausage-like wreaths depend in the accustomed manner; between the pylons were three round-headed arches; a good piece of work in a conventional style. The second prize (10*l.*) was awarded to Mr. D. Wickham Ayre for a design for a flêche.

Mr. Louis de Soissons, besides his success with the Travelling Studentship, gained the 25*l.* prize for "An architectural design," the subject apparently a "Gateway in a Walled City," treated in classic form with a Roman Doric order. A design numbered 173 for a similar subject, treated in a mediæval manner, was clever but an anachronism.

The sculpture subject for "A design in the Round" (small scale) was "Orpheus and Eurydice," a very suggestive subject for a composition of two figures, for which the first prize (30*l.*) was awarded to Mr. John Angel for a very good design, and the second (10*l.*) to Mr. Percy B. Baker; the general character of the work in this sculpture competition was very high, as of late years it generally has been. The silver medal for "A design containing figure and ornament," in relief, was gained by Mr. W. W. Wagstaff; a design with a shield, bearing the name of "Ruskin," in the centre, with nude figures as supporters—a very good piece of work; the two other exhibits in the same competition, numbered 137 and 138, were also of great merit.

The Armitage Prize (30*l.* and a bronze medal) for a sketch composition in monochrome for a figure subject—"Elijah raising the Widow's Son," was won by a lady, Miss A. Joanna Fry, who also gained the prize for "A design for the Decoration of a Public Room," one of the most important prizes of the year, since it represents painting as adapted to architectural decoration. The subject was "Husbandry"; a rather vague and perhaps not very inspiring subject, which leaves at any rate great latitude of interpretation. It may be owing to this that the general level of the designs seemed hardly equal to the average; but there was no doubt that Miss Fry's was by far the best and showed a fine sense of colour, though the composition seemed a little indefinite in line. The subject for a life-size cartoon of a figure was a very good one—"A draped female figure on a wind-swept shore," and led to a very good competition; there was a temptation, of course, to overdo the windiness of the drapery, but they were a fine set of drawings. The prize here was again won by a lady, Miss Marianne Robilliard, for a very gracefully composed figure; after this No. 25 was the best, being quieter in line than most of the others.

The Creswick Prize for landscape painting was also won by a lady, Miss Mabel G. Dicker, so that this has been quite a lady's year. The subject was "In an Orchard," and we agree as to the award of the prize—we have not always been able to do so. Nos. 8 and 12 had also considerable merit, though the latter suggested a forest rather than an orchard.

Perspective still seems to have little attraction at the Academy, since two silver medals offered for architectural subjects in perspective are marked "no competition."

Miss Fry's design for a decorative painting and Mr. de Soissons' Travelling Studentship design will be illustrated in our next issue.

WHISTLER MEMORIAL, CHELSEA.—Two replicas have been executed of M. Rodin's life-sized figure of Fame which he has sculptured for the memorial at Chelsea. One of the replicas will be erected in Whistler's birthplace, Lowell, Massachusetts.

COMPETITION FOR A BUILDING IN FERRO-CONCRETE.

THE designs which have been submitted in response to our invitation to compete for two premiums for the best design for a front for a Club to be carried out in ferro-concrete are on view this week at the premises of the Architectural Association in Tufton-street (as stated under the head of "Competitions").

The assessors were all of opinion that the collection was of considerable interest and included some very good work; though of course, as in all competitions, there are a considerable proportion which could not be regarded as in the running for an award. The causes of failure among the best of these outsiders are either a want of special character arising out of the construction—in other words, the adoption of forms and treatment more expressive of a masonry than of a concrete structure; or secondly (a very common fault in competition drawings) over-elaboration of ornamental detail and consequent want of breadth and repose in design.

The assessors had little difficulty in deciding on the award of the first premium to No. 29, by Mr. F. J. Lucas, which will be published in our issue of January 2. This is an elevation which combines originality of treatment with reserve and dignity of style, and is perfectly suited to the expression of the material. The only fault we have to find with it is that the frieze, with a gold mosaic ground, is rather too deep in proportion to the remainder of the elevation.

The award of the second premium was not so easy. After much consideration of several of the designs, it was decided to award it to No. 13, by Mr. Hepburn, as a very clever design in which a character is given to the main features, which take the place of the ordinary pilasters and cornice, which is original and suitable to the structure. There are minor details in it which we do not quite like, but on the whole it best fulfils the conditions among those which were considered for the second premium. This design will be published in our issue of January 9.

Among the others are two or three which are very good but which failed owing to certain practical oversights. No. 9, for instance, except for the cornice being exactly like the usual section of a stone cornice, is a very clever and agreeable treatment of a front with a suitable polychromatic decoration, and in that respect one of the best examples of the kind of thing we were looking for. But considering that the design was to be for a Club, the windows are far too small, and moreover there is no attempt to emphasise the first-floor windows, which should naturally have been done when the first floor was figured higher than the others in the diagram sent with the instructions. Nevertheless, this is a design which we should think quite worth publishing if the author wishes. No. 26 is also a very pleasing front to which the same objection as to windows applies; the fenestration is that of an ordinary dwelling-house on a large scale; and even for that the windows would be small. There is rather a tendency at present, among students' designs, to seek for a broad external effect by keeping the windows small and having thus plenty of wall space, but it must be remembered that however well small windows may look outside, the external appearance will not compensate for badly lighted rooms inside.

No. 16 is a very good design, with the windows well treated, but the author has adopted the view that the best treatment of a ferro-concrete building is to veneer it with slabs of marble. That is one way, no doubt, but it is one which might just as well (more easily in fact) be applied to a brick building, and therefore could not quite be reckoned as a special treatment for ferro-concrete.

Among others that are worth special mention No. 25 is very clever but rather overdone with detail; the row of segmental arches above the ground story would not have a very good effect in perspective, and the lead figures of eagles between them would be rather heavy appendages to be placed on such a position in lead. Still, this is a clever design. No. 15 is a very clever and artistic sketch of an elevation, which in general character is one of the best things in the collection; unfortunately the drawing of the figures which form a prominent feature is slight and weak, and some of the other details are bad; but there is a great deal of artistic feeling in this drawing, and we should expect its author to do better things eventually. No. 2 is a clever and well-drawn design, but the arch form is too prominent in it for the proper character of a ferro-concrete building, to which arch construction does not properly belong. No. 43 has aimed at the right sort of treatment, but this has the opposite fault to some others of being over-windowed, and the monotonous range of large openings gives more the impression of a mill than a club. No. 22 and No. 23 are slight sketch designs which deserve mention because their authors have understood what kind of treatment to aim at. No. 44 shows what may be considered a right ferro-concrete treatment, but unfortunately it is totally devoid of artistic character, and strikes us as the design of an engineer.

We received fifty-four designs, of which three had to be declined through not complying with the conditions.

We have to express our best thanks to the Council of the Architectural Association for so liberally placing their gallery at our disposal, and to Mr. Driver, the Secretary of the Association, for most kind assistance in directing the arrangement of the drawings. We must also express our best thanks to the two eminent architects, Mr. R. Blomfield and Mr. Walter Cave, who assisted as assessors, and who went into the matter with most conscientious care.

Two small pieces of advice we are tempted to give, suggested by this competition. One is, that it is worth while, if people go into a competition, to attend to the announcements in regard to it. In spite of the clear statement that "we could not accept drawings on loose sheets of paper" (of course because of the increased difficulty in examining and exhibiting them), two competitors sent in their drawings in that form, which were consequently declined. When announcing that the drawings would be exhibited, we invited competitors to state, in their sealed envelopes, whether they wished their names to be attached to their designs. Only a few did so, and we sent down specially to affix those names as soon as the envelopes had been opened; then we got a message from a competitor to know "why some names are affixed and others not." Another point is that it is worth while to write your name legibly. One correspondent who applied for the conditions has never had an answer, for the sufficient reason that both his name and the address written on the head of his paper were absolutely illegible; we had considerable trouble to decipher two or three other signatures; one competitor complained to us that we had got his initials wrong, the initials being represented in his own signature by a hieroglyphic which might have meant anything. Not to sign your name legibly in a letter on business is a want of practical commonsense (unfortunately far too common).

PRUSSIAN ROYAL ACADEMY OF SCIENCES.—Dr. Barclay V. Head, formerly Keeper of the Department of Coins and Medals in the British Museum, and Dr. Percy Gardner, Professor of Archæology, Oxford University, have been elected corresponding members of the Prussian Royal Academy of Sciences.

Hamburg-America Line Offices: Bronze Panel over Entrance. Mr. J. Wenlock Rollins, Sculptor.

BRONZE PANEL, HAMBURG-AMERICA LINE OFFICES.

THE illustration represents a decorative bronze panel over the entrance of the Hamburg-America Line offices.

The figures symbolise "Germany" and "America," and were modelled by Mr. J. Wenlock Rollins and cast by Messrs. Burton.

Messrs. A. T. Bolton and Stock, Page, & Stock are the joint architects. The front of the building was illustrated in our issue of March 23, 1907.

THE ASSOCIATION OF WATER ENGINEERS.

THE thirteenth annual winter meeting of the Association of Water Engineers was held on Friday and Saturday last week in the rooms of the Geological Society, Burlington House, W., Mr. H. E. Stilgoe, M.Inst.C.E., City Engineer of Birmingham, President, in the chair.

The Measurement of Rainfall.

The minutes of previous meetings having been read and confirmed,

Dr. H. R. Mill, D.Sc., LL.D., President of the Royal Meteorological Society, Director of the British Rainfall Organisation, delivered a lecture on "the Measurement of Rainfall," which was illustrated by lantern-slides. He said that all water on the land came from rain, and the accurate determination of rainfall was the necessary basis of all work which had to do with the utilisation or control of natural water. The determination involved (1) the measurement of the actual amount of rain which fell on the land, (2) the computation of the average fall for a long period, and (3) the allowance to be made for evaporation and other causes of loss in order to arrive at the amount of rainfall available for supply. In measuring rainfall the simplest instruments were the best. Where it was possible, readings of rainfall should be taken daily at 9 a.m., but valuable results were also obtainable from readings made once a month or, in some cases, even less frequently. It was important that water resulting from every form of precipitation be taken into account; then snow, dew, frost, and hail must be collected and measured as well as rain. For this purpose the rain-gauge should have a deep vertical rim as in the Snowdon (5-in.) or Meteorological Office (8-in.) patterns, and the mouth of the gauge should be level and stand 1 ft. above the surface of the ground. Many obsolete or unsatisfactory forms of rain-gauge were on the market, and as they were frequently more expensive than the better and simpler forms they were often purchased in the belief that they were on that account the more accurate. Cases had occurred of records 50 per cent. in excess resulting from the use of a bad gauge. For monthly readings a deep-bodied form of gauge was best, and the Bradford pattern was the most convenient. When a rain-gauge was placed in too exposed a situation or raised on a pole or wall, eddies set up by the wind reduced the catch of rain by about 1 per cent. for every foot above 1 ft. up to about 10 ft.; above that height the amount of loss was erratic. As the amount of loss was not constant, but varied with the force of the wind, this average correction could only be applied to the average of a series of years, and not always then. On moorlands or mountains rain-gauges should be protected from the sweep of the wind by a low circular wall or fence about 2 ft. high and 8 ft. diameter with the gauge in the centre. Some mountain records were very misleading on account of small catch due to over-exposure. Undue shelter by the proximity of buildings or trees was equally objectionable, and must be carefully avoided. The method of entering the rainfall was more important than was commonly thought. The reading taken at 9 a.m. should, to ensure uniformity, be entered to the previous day. This was done by an overwhelming majority of observers, and the neglect of the rule might cause serious discrepancies in the records of the relative wetness or dryness of consecutive months or even years.

There were still many parts of the British Isles totally without rain-gauges, and new records were wanted in order to make it possible to map the monthly and annual rainfall in most of the counties of England and in all the counties of Wales, Scotland, and Ireland. Rules for observing rainfall and forms for recording it were sent gratuitously on application to the British Rainfall Organisation, 62, Camden-square, London, N.W.

Observations on evaporation were still few and often unsatisfactory, and it was most desirable that they should be increased in number and rendered more strictly comparable. Measurements of river-flow and the run-off from catchment areas want to be largely increased and systematised before the natural laws regulating the relation of rainfall to run-off could be established on a scientific basis. In the opinion of the lecturer there ought to be a systematic survey of the amount of water available for supply and power in the British Isles, a task which would involve a great increase in the number of rainfall observations in remote places.

The Chairman moved a hearty vote of thanks to Dr. Mill for his lecture, and said it might be of interest to know that mention was made, in a book by Dr. Plott on "The History of Oxfordshire," published in 1676, that rain-gauges had been kept by Sir Christopher Wren.

Mr. Askwith seconded, and the motion was agreed to, Dr. Mill briefly replying.

The Water Supply of Hythe, Kent.

A paper was then read by Mr. Chris Jones, Borough and Water Engineer, Hythe, on the Water Supply of Hythe. The author described the existing source of supply, and the circumstances leading up to the necessity of the new works now approaching completion. The estimated population of Hythe was 6,266, area 2,698·38 acres, with a range of level from sea-level to 320 ft. above O.D The capital expenditure on the old works was 18,321*l.* The Saltwood Works were situated in the Parish of Saltwood, about 1¼ miles northward of the town, at a level of about 228 ft. above O.D. The well, which was sunk in the lower greensand formation, was 109 ft. deep, passing through the Sandgate and Hythe beds to the Atherfield clay, with two headings driven in the Hythe beds. The dry weather yield was 35,000 gallons per day. Duplicate engines and pumps were provided which delivered the water into a covered reservoir, with a capacity of 500,000 gallons, in the adjoining ground, but 30 ft. higher than the engine-room floor. The cost of these works was 12,000*l.* They were constructed under the powers of the Hythe Corporation Act, 1874. The Town and Eastwell Springs rising in the Hythe beds, about 100 ft. above O.D. were the oldest sources of the town supply; the dry weather yield was 13,000 gallons per day, the water running direct into the old town reservoir. The other source of supply was that known as Blackrock Spring, a mile eastward of the town. The yield was constant, and amounted to 25,000 gallons per day. The total cost, including land, mill rights, reservoirs and mains, was 3,040*l.* This supply was at a sufficient elevation to supply, without pumping, the whole of Seabrook—a residential suburb at the eastern end of the town.

In 1900, owing to the growth of the town, particularly on the higher levels, the question of an additional supply was before the

Corporation, and Mr. William Whitaker, F.R.S., and Mr. T. Hennell, M.Inst.C.E., were consulted. They advised that a well should be sunk into the Folkestone beds of the lower greensand at a point about two miles north-west of the town. The conditions and restrictions imposed by the landowners were, however, of such a character that the Corporation were compelled to abandon this site, and, to enable them to have time to further consider the question, an agreement was made with the Folkestone Water Works Company to supply a minimum quantity of 80,000 gallons per day for a term of five years, at the rate of 1s. per 1,000 gallons. The charge appeared excessive, and the agreement could only be justified in view of the grave risk of a water famine which existed at the time it was entered into.

At the time of the author's appointment in October, 1902, although there was available at least 153,000 gallons per day, which, on the census population of 1901, viz.: 5557, should have given a constant supply of about 27½ gallons per head per day, the supply was intermittent, and constant complaints were received of insufficient supply. The Deacon's Waste-water-Meter system having been introduced, the leakage was found to amount to 3,600 gallons per hour, chiefly in the mains. Upon the author's advice, the distribution system was re-arranged, 2,800 yards of new mains were laid, a large number of dead ends removed, and a circulating system adopted. With these improvements the supply from Folkestone was kept at a minimum.

In 1904 the Corporation decided to promote a bill in Parliament to construct works at Bluehouse in the Parish of Saltwood. The Bill was practically unopposed, an agreement having been arrived at with the landowner at an early stage in the proceedings, and the Royal Assent was obtained in July, 1905. Mr. G. F. Deacon, M.Inst.C.E., acted as consulting engineer to the scheme. The cost of obtaining the Act was 1,269*l*. The Parliamentary estimate was 11,000*l*. for the purchase of land and works, and 1,000*l*. for electric-mains, the Corporation wishing to have power to drive the plant by electricity, if it was thought advisable. The scheme adopted was practically that which was recommended by the late Mr. S. C. Homersham, in a report dated September 1, 1870, the only real difference being that the reservoir was placed at a higher level, and the details of the scheme had of course been modified to suit modern requirements.

The site of the well was about two and a half miles north of the borough, and was on the gault. Prior to sinking the permanent well a 14-in. borehole was sunk, lined with mild steel tubes ⅜-in. thick, with flush screwed joints. At 88 ft. deep the hole was reduced to 12 in. diameter, and 12 in. perforated tubes inserted. At 99 ft. water was found; between 107 ft. 6 in. and 118 ft. a large volume of water with exceedingly fine sand was reached, giving a lot of trouble until the tubes were through. It was found impossible to get the tubes lower than 163 ft., but the boring was carried down to 189 ft. The contractors were Messrs. A. C. Potter & Co.

The permanent well, the contract for which was let to another firm, was 163 ft. deep, the top 70 ft. being in 14-in. brickwork in cement and 9 ft. internal diameter, the first 5 ft. being surrounded with 12 in. of cement concrete in the proportion of six of clean shingle to one of Portland cement, and the next 17 ft. with a foot of clay puddle; this was done to keep out the surface water from the chalk marl. The excavation to water level was all done by hand, and the 22 ft. of brickwork backed with puddle and concrete was built in the excavation then proceeded in 10 ft. lengths; the back 4½-in. ring of each length being built in first, thus obviating any necessity for timbering, after which the inner 9 in. of brickwork was built up, starting from the bottom. The foundation for the brick shaft was of concrete 4 ft. deep and 2 ft. wide. The lower portion of the well was lined with cast-iron cylinders 7 ft. 10 in. internal diameter, and 1 in. thick, in 6 ft. lengths, each cast in one piece. The flanges were 1¼ in. thick and 4 in. wide, with brackets 1¼ in. thick between each bolt-hole; each cylinder being further strengthened with an annular rib 1 in. thick, 4 in. wide, with brackets 1 in. thick. The cylinders were bolted together with twenty-four bolts 1¼ in. diameter. The joints were faced and made with white hempen plaited gasket well soaked in tallow, and the caulking space filled with rust jointing material well caulked in. The bottom cylinder was 4 ft. deep, and was made of mild steel plates ½ in. thick in one sheet, the joint being covered with a steel plate 4 in. by ½ in. with ⅞ in. rivets 3 in. pitch, and the top formed with 4½ in. by 3 in. by ½ in. mild steel angles, the bottom having a cutting edge. The bottom of the well was sealed by a cast-iron cone 5 ft. high, 6 ft. 4 in. internal diameter at the base, tapering to 14 in. internal diameter at the apex; it was in two parts jointed with flanges 3 in. wide, bolted together with twelve bolts 1 in. diameter, the joint being made in the same manner as described for the cylinders.

Considerable thought was given as to the best means of keeping the fine sand out of the well after completion, and it was decided to adopt Mr. G. F. Deacon's patent strainers. There were twenty-four strainers in each cylinder below the top-water level; bosses were cast on the inside of the cylinders and holes bored for the strainers, which were forced in by hydraulic pressure, a projecting rim on the strainer being caulked over while the pressure was on. The method adopted in sinking the cylinders was as follows:—Timber guides, 30 ft. long, were fixed at the bottom of the brickshaft, the cast-iron cylinders were bolted and jointed to each other at the surface and then lowered into the shaft. From the bottom of the brickshaft to the water-level the ground was excavated by hand, then a grab was used, the cylinders sinking by their own weight till within 20 ft. of the bottom, at which point it was necessary to use jacks to force the cylinders as the excavation proceeded. The material at this point being very close and compact a large chisel was used to loosen it, and in the author's opinion, it was the use of this tool that caused the damage subsequently discovered to the bottom cylinders. At 6 ft. 6 in. less than the contract depth instructions were given to put in the gravel filter and fix the cast-iron cone, also to put in the concrete to make the well watertight. The space between the cylinders and the brickshaft was filled in with fine concrete.

No pumping took place during the sinking of the cylinders so that the water and sand should not be disturbed thereby. An 8-in. steam-pump was then fixed to pump the well out, so as to commence work on clearing the strainers. Considerable time was occupied in endeavouring to do this, the flow of water being very great. It was ultimately decided to send down a diver to make an examination of the bottom, it being thought that a wooden cover which had been fastened on the top of the cone was broken; the diver, however, reported that the two bottom cylinders had cracks some 3 ft. long, with a maximum opening of ⅜ in. in them. A length of 14 in. cast-iron pipe was attached to the top of the cone and 4 ft. 6 in. of concrete put in the well; and the top of this was grouted, the whole of this work being done by the diver. After sufficient time had been given to allow the concrete to set, the well was pumped out, this time without difficulty.

A 600 gallons tank was fixed at the top of the shaft with a 2-in. wrought-iron pipe carried down the shaft (lengthened as required) in order to supply water under pressure for clearing the strainers. A 2-in. plug cock was fixed at the bottom with two 1-in. flexible tubes each fitted with two 1-in. plug-taps and a screw-fitting to attach to the strainers. The mode of procedure was as follows:—The flexible tubes were attached to a pair of strainers, the main cock was turned on quickly, water being thus forced through the strainers for a short time, when the cock was suddenly shut, and simultaneously the cock on the flexible tube was opened to discharge the sand and water into the well. This process was continued until the water ran freely and clear from every strainer. After each strainer had been treated in this way the plugs were left out in each ring. In connexion with this some curious effects were observed, as, for instance, when clearing one strainer, another on the opposite side of the cylinder, which had previously been running clear, would discharge a large quantity of sand. As each ring was completed the plugs were replaced, and when the bottom was reached the same process was completed, only that the plugs were all left out. This method had been particularly successful in increasing the flow of water, and also in removing the finer particles of sand immediately behind the cylinders. Another great advantage was that if in the future it was found that the strainers were not working satisfactorily, it would be very easy to clear them in the same way. The estimate for the well was 1,690*l*., which of course was very low and must not be taken as representing the actual cost. It was no doubt owing to the low figure at which the contractor undertook the work that it took so long to complete, and in the end the work was taken out of the contractor's hands and completed by direct labour. It was interesting to note that the average amount of eighteen tenders received for this work was 2,800*l*., the author's sealed tender, put in at the same time, being 2,818*l*.

The whole of the mains used in connexion with the new works were Stewart's and Lloyd's light lap welded wrought steel pipes with Stewart's patent spigot and socket joint (improved design) for lead and yarn. The tubes were tested to 600 ft. head of water and coated with Dr. Angus Smith's composition inside and out. All mains were laid with 3 ft. cover. Alternative tenders were obtained for steel and cast-iron pipes, and the difference in cost was over 300*l*. (or 1s. per yard) in favour of steel pipes. The author was particularly struck with the ease with which the mains were laid, two men being able to lift a 20-ft. length and place it in the trench without the slightest difficulty. One drawback to the use of such long pipes was that when laid in narrow and winding lanes there was a great deal of waste in cutting to get round even very easy bends. The contract price for the mains was 1,943*l*.

The service reservoir was situated on the side of Tolsford Hill at an elevation of 428 ft. above O.D., which was 100 ft. above the highest part of the borough. It had a capacity of 120,000 gallons, and was constructed in cement concrete, the walls being 5 ft. thick at the bottom and 3 ft. at the springing of the roof arches; the floor 12 in. thick, and the roof, which had a minimum thickness of 8 in., was supported by steel girders 12 in. by 6 in. carried on cast-iron columns. The dept of water was 10 ft. when full. The reservoir was lined with Callender's bitumen sheeting. The outlet pipe was provided with a floating arm regulated to drain off the water 6 in. from the top, and there was also a combined overflow and washout. The soil in which the reservoir was constructed was chalk. The cost of the reservoir was 1,014*l*.

A discussion on the paper followed, in which Messrs. W. Whitaker, Sandeman, Lowcock, P. H. Palmer (Hastings), Hodson, Matthews, White, Lewis (Farnham), Easton (Devonshire), Bird, and Phelps took part.

The discussion was concluded on Friday, and on the following day Mr. Jones replied.

Professor W. R. Smith, M.D., D.Sc., Principal of the Royal Institute of Public Health, then gave a short account of a water-borne outbreak of typhoid fever, which occurred at the Hydropathic establishment at Malvern in the year 1905. There could

be no doubt, he said, that the Malvern outbreak was due to a polluted water supply, the pollution being directly traceable to the overflow from a manhole, which had become temporarily blocked, the pollution of the water being possible consequent upon the faulty construction of the waterpipes.

A short discussion followed.

The President announced that during the coming year three premiums would be offered for papers, one of the value of 10*l.* and the other two of 5*l.* each.

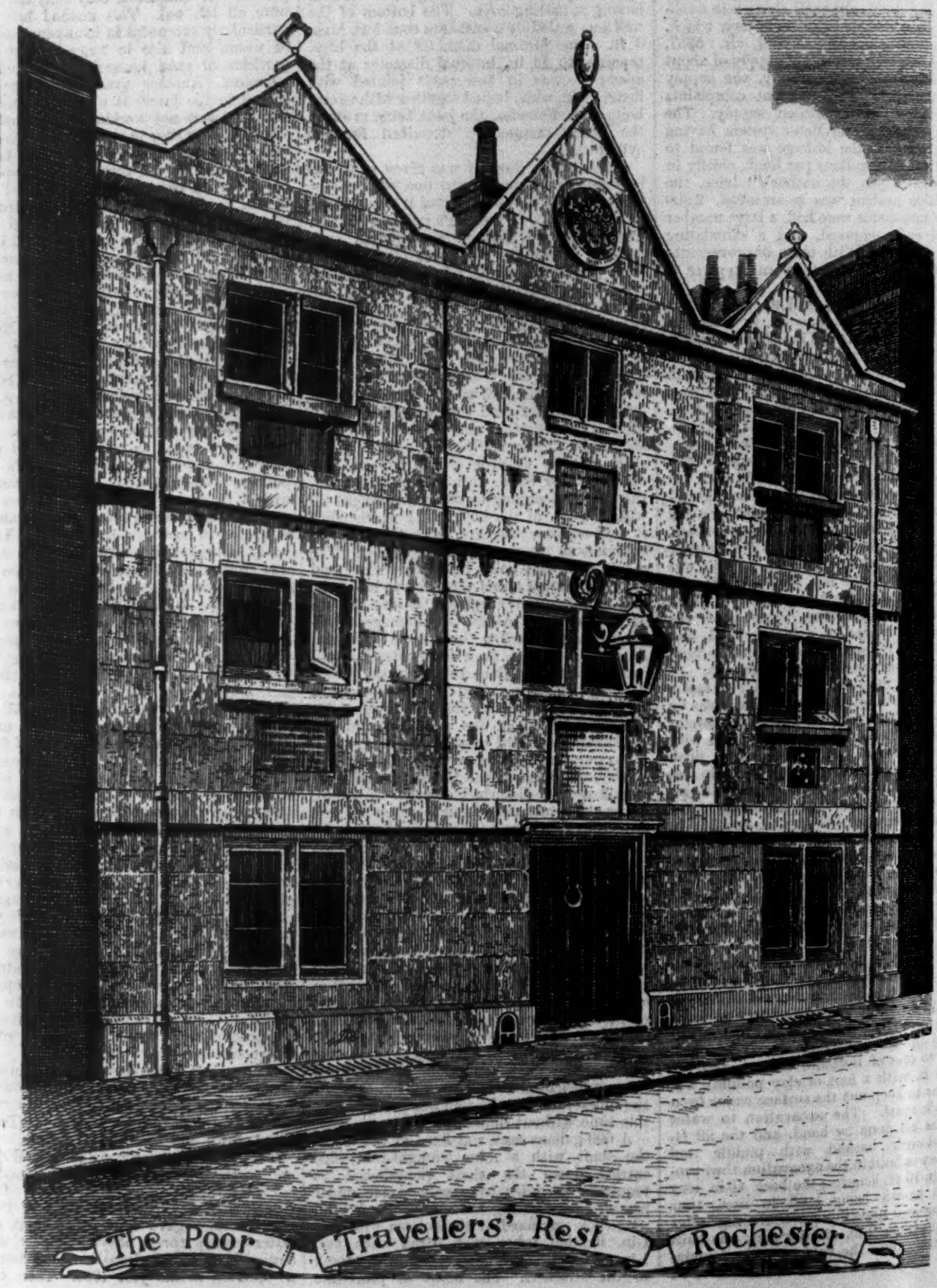
Mr. Percy Griffiths (Secretary) then introduced the subject of the national registration of plumbers, and said the movement for rendering such registration universal throughout the United Kingdom was one which concerned a far larger circle than that represented by the trade itself. Upon the quality of the plumbers' work depended the health of the community at large to an extent scarcely appreciated by the public. Defects in the arrangement and execution of water and sanitary fittings had been responsible for an enormous amount of disease and even loss of life, owing to the fact that each individual case might become the starting-point for an epidemic, the limits of which could not possibly be foreseen.

Mr. E. Antony Lees (Secretary of the Birmingham Water Department) expressed the opinion that the national registration of plumbers would prove of benefit to the water authorities throughout the country and at the same time help forward a movement that would strongly tend to the promotion of public health.

Several other members of the Association also spoke of the importance of the new movement.

THE POOR TRAVELLERS' REST, ROCHESTER.

On the north side of the narrow high-street of Rochester stands the house immortalised by Charles Dickens in one of the Christmas numbers of *Household Words*. The front of the building has been somewhat restored, but the gallery, occupying one side of an open space in the rear,



erected for the comfort of the poor wayfarers, is part of the original foundation.

As is recorded by the inscription on an ornamental tablet, one of the worthy Mayors of Rochester endeavoured to perpetuate the memory of the founder as follows:—

"Richard Watts, Esq., by his will dated August 22, 1579, founded this charity for six poor travellers who not being rogues or proctors may receive gratis for one night lodging, entertainment, and fourpence each. In testimony of his munificence, in honour of his memory, and inducement to his example, Nathl. Hood, Esq., the present mayor, has caused this stone gratefully to be renewed and inscribed A.D. 1771."

SIDNEY HEATH.

THE SOCIETY OF ARCHITECTS.

THE usual monthly meeting of the Society of Architects was held on Thursday last week at Staple-inn-buildings, Holborn, W.C., Mr. G. E. Bond, President, in the chair, when Sir J. Benjamin Stone, M.P. (honorary member), lectured on "Eastern Buildings."

The minutes of the last meeting having been read and confirmed, and some candidates for membership having been elected, the President briefly introduced the lecturer.

Sir Benjamin Stone, whose lecture was illustrated by a large number of lantern slides of buildings, etc., from photographs taken by himself, said that he had been put down to read a paper to them, but what he was about to do was to give them a selection of the photographs he had taken during his recent travels in Turkey and Asia Minor. The views he should show were not strictly architectural, but they had more than an architectural interest, because they were what he called history photographs. He was endeavouring to put into pictorial form the current history of the time, and he asked them to believe that they saw not only the chief views of Constantinople and other places, but that they felt the atmosphere of the various places. He was in Constantinople just on the eve of the change in the Turkish Government. Practically he saw the expiring efforts of old Turkey to maintain their ground, and he saw the movement for the revolution which had taken place since. Although he had the Government countenance, still he was prevented in some cases from taking photographs and entering buildings; and though he was too quick for the guards and soldiers in taking exterior views, the difficulty was to get inside the mosques. His special reason for visiting Turkey was because of the recent acquisition of some famous tombs—the Sidon tombs; but he found great difficulty in getting into the museum to see them. But, in regard to all such difficulties, he was glad to know that methods were now happily changed in Turkey.

The lecturer then showed a number of views of mosques, and directed attention to the evolution of the mosque under different influences. The Church of Santa Sophia at Constantinople was a Christian church in early times, and right through the Byzantine emperors; the minarets were added after the conquest of the city and the occupation by the Turks. The ordinary Mahomedan mosque was not glorious within like Santa Sophia, and the beautiful internal decoration of that building owed its origin to Christian influences.

The lecturer showed a large and interesting collection of views, and referred to some of the characteristics of the buildings, etc., illustrated, such as the pulpit or room at Santa Sophia used by the Sultan when he went there; the Mosque of Hamid, with its six minarets; the Mosque of Selim the Great; and the ancient underground reservoirs for the supply of water to the city. Constantinople had no regular water supply, and a supply was brought by conduits from a distance, and this was stored in reservoirs underground. In olden times there were a number of these reservoirs underground, and while some of these had gone into decay, some could still be seen, and they were very beautiful. The lecturer showed one of these cisterns, and said that the place was now used by the silk weavers, and the building was like some beautiful old church.

In the Mosque of Mahomet Ali at Cairo some beautiful minarets were to be seen, and a view of the mosque and the forecourt of the great mosque at Constantinople of Suliman the Magnificent were shown. There were many indications that the builders of this period—the XIVth century—had reached a high degree of excellence in their work; the carved and inlay work of the period was very beautiful and most interesting.

The columns of Luxor in Egypt, a view of which he showed, exhibited the grandeur of effect of repeated columns in good proportions, and this was seen in various Eastern examples.

Amongst other views shown were: part of the old and beautiful Seraglio at Constantinople, now used as part of the museum; the Mosque of Kait Bey at Cairo, where the minaret was treated in a more ornamental way and with a finer kind of decoration—the decoration of the dome was of a most elaborate kind, verses from the Koran being used for the purpose; and the mosaic mosque at Constantinople, originally a Byzantine Christian church, the minarets being added afterwards—it was one of the most famous churches for interior decoration, which was covered with whitewash. It was much thought of by the Greek Church, and when the Emperor William of Germany visited Constantinople the whitewash was removed so that he might see the decoration, but as soon as he had departed the decorations were recovered in the same way.

Many other interesting views were shown, including the ancient walls of Constantinople, the old Genoese house and quarters, the narrow streets and wooden houses of Stamboul, and the bridge and great thoroughfare between Stamboul and the newer part of Constantinople.

As to the famous tombs he went to see, they were of great potentates. There were seventeen of them, and one of them, called a sarcophagus of Alexander, though that was not the proper name for it, might be considered the most beautiful work of the kind in the world, and the work, done some 2,500 years ago, was in a perfect condition. There was no record of who was buried in these tombs or who made them, and when discovered accidentally they were hidden in the side of the mountain rock. All the tombs were beautiful, but not all were so excellent in workmanship. The action of the horses in some was very fine, the deep under-cutting being particularly noticeable.

Views of buildings or remains at Broussa and Nicea were also shown, and these, the lecturer said, were well worth an expedition to see.

Mr. G. A. T. Middleton proposed a hearty vote of thanks to the lecturer, and referred to the work Sir Benjamin Stone is engaged in of securing photographs and records of things which were passing away. The work of Sir Benjamin in connexion with the National Records Association was a great one. All buildings which were likely to disappear were carefully preserved by photographs, which were deposited in the British Museum. This work would be of great use to future architects. From what existed in this country we knew how rich it had been in its architectural works, but very few records remained of buildings which had gone, particularly of their detail. Mr. Middleton also referred to the beauty of the photographs they had seen and to the character of the tombs and the bastion walls.

The motion, which was heartily agreed to, was seconded by Mr. Coventry Dick, and supported by Mr. G. Scammel (who suggested that those who took photographs might send copies to the National Records Association) and Mr. Kershaw (who said that other cities might make records as well).

Sir Benjamin Stone, in reply, said this work would be much appreciated a generation or two hence. There were many things about the past which we should have liked to know which photographic records would have told us.

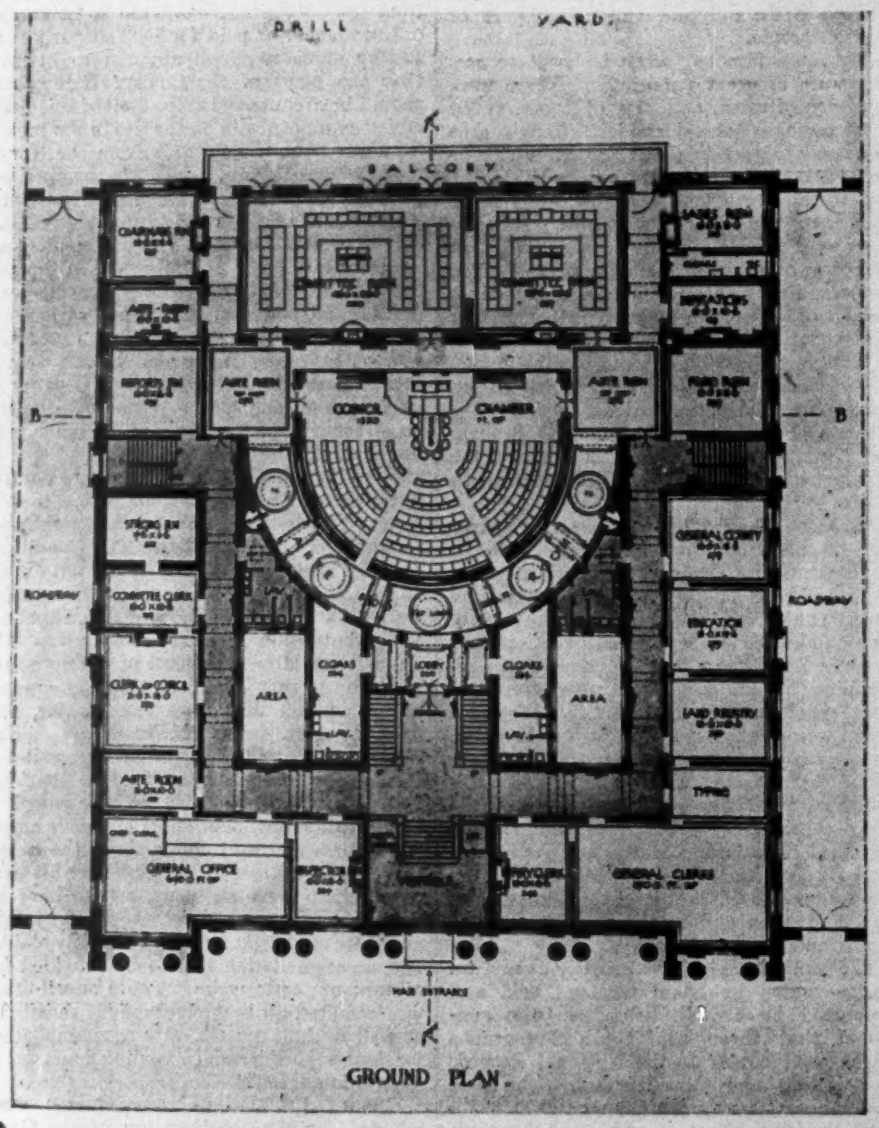
The meeting then terminated.

GLAMORGAN COUNTY HALL COMPETITION.

FEW sites could be more favourable to architectural display than Cathays Park, Cardiff, which is gradually becoming a centre of architectural interest second to none in the provinces; and we may safely say that the design selected for the Glamorgan County Hall need not fear comparison with the buildings which have been already erected in its near neighbourhood. Our readers are doubtless familiar with the appearance of the new municipal buildings designed by Messrs. Lanchester, Stewart, & Rickards, and the new Registry of the University of Wales, the work of Messrs. Wills & Anderson. A high standard, therefore, was set, a fact duly appreciated by the majority of competitors. In our issue of July 25 we gave a detailed description of the site; it will be sufficient therefore in the present instance briefly to recapitulate the main features. Three tree-planted avenues cross Cathays Park in a parallel direction; the Central-avenue is already partly occupied by the Law Courts and the Registry of the University on the one side, and the City Hall on the other side. The site of the new County Hall is on a plot of land adjoining the Registry, having a a frontage of 154 ft. 6 in. on the Central-avenue, and extending back to the North-road a distance of 280 ft. The building-line is set back 25 ft. from the Central-avenue and 30 ft. from the North-road. Additional accommodation for a future Chief Constable's department was to be allowed for on the site; this portion of the scheme, however, to quote from the Conditions, was "not to be carried out, designed, or paid for." The purpose of stating these requirements was to indicate that the plans of the County Hall proper should be so contrived as to admit of this being added symmetrically on the site in the future. Standing about 50 ft. back from the North-road is an oak-tree, which the competitors were directed to leave untouched "at present," which might be construed as until the erection of the Chief Constable's department, thus suggesting a limit to the extent of ground covered by the object of the present competition. Upon this stipulation various interpretations were placed, some schemes religiously preserving every branch intact, others necessitating a complete docking of its foliage on one side. As the unbuilt land on either side of the site may be built on in the future, sufficient set-back had to be allowed for on the sides for light. For the purposes of the competition the site was assumed to be level, and it is practically so, though not altogether flat. The Conditions required that the total cost should not exceed 45,000*l.* "above the basement floor, including works for water-supply, heating, lighting, and ventilation"; and added that the Council would bear the cost of the necessary works up to that level, which, in consequence of anticipated difficulties from water, was fixed at 4 ft. below the road level. This restriction, it will be apparent, necessitated the placing of the ground floor at the least 7 ft. above the road level, to give sufficient height to the basement floor; and gave ample scope for a feature to be made of the necessary flight of steps. A passenger-lift was required, to serve all floors, and to have an entrance at street level, so that infirm members might not have to go up any stairs; and accommodation had to be provided for motor-cars and cycles. The Council Hall was required to seat eighty-eight members, as well as eight officers, with accommodation for four reporters, and standing room for a deputation of ten.

Out of 198 designs received, ten were selected for the consideration of the Committee; these were on view at the Cardiff City Hall till Monday, December 15.

The design recommended by the assessor, Mr. W. D. Caröe, was that of Messrs. E. Vincent Harris & T. A. Moodie, to whom the first premium of 105*l.* was awarded. The plan is admirably simple and straightforward; an open area in the centre, partly occupied on the ground floor by the Council Chamber and members' lobby. Entrance is gained through a handsome vestibule, from which a short flight of steps leads to the general ground-floor level. We think perhaps that the effect of this portion will be somewhat marred by the lift and telephone-boxes placed on either side of these steps, of which, by the way, we can find no trace in the sections. Arrived at the top of this flight we are in the staircase-hall; on either side branch out the corridors leading to the Clerk of the Council's offices; facing the entrance are the main stairs, running in two parallel flights to a landing, beneath which the members' lobby is at once entered, without any intervening length of corridor. This is one of the outstanding excellencies of the design, the readiness of access to what we may call the legislative portion of the building, and the way in which the committee-rooms (two of which were required: one to seat forty and one to seat twenty-five), together with the Chairman's private retiring-room, and all ante-rooms and lavatories, are grouped round their centre, the Council Chamber, and kept separate and distinct from the public offices. An important item in this latter-day planning of municipal premises, the provisions of adequate accommodation for lady councillors, is well attended to. It will be at once apparent from the ground plan, which we append, how the placing of the Council Chamber, semicircular on plan, within the central area, with the corridor sweeping round on the outside of the apse, if we may so term it, brings with it the solution of the whole problem; this is the root idea, in which its superiority over the other designs submitted consists; the rest follows naturally and easily, with the minimum of wasted space. On the first-floor are placed the Education and Accountant's offices, to which access is given by a corridor excellently lighted from the central area. The second and top floors follow the same plan. Here are the offices of the Medical department, the County Surveyor, and the School Architect. The drawing-offices of these two latter departments, together with the Contractor's Inspection of Plans room, ranged along the front with a northerly aspect are lit to the best advantage by top-lights, the treatment of the elevation allowing here of a blank attic story above the main cornice. Access is gained to the drill-yard from the Central-avenue by two side roads, the future Chief Constable's department being placed at the rear facing the North-road. The elevations, if not of remarkable originality, show a sense of style which is very acceptable in these days. Here is no half-hearted parleying with modules and minutes; but a frontispiece of fourteen Corinthian columns, of irreproachable propriety, serves to remind us that the Roman Ionic Order is not our sole inheritance from the days of the Renaissance, and that the plagiarism of an educated taste may be more tolerable than an originality which knows not the Muses. Among the ten designs selected for the final decision, there may be, and undoubtedly are, finer elevations than this; but we have no hesitation in recording our opinion that the plan is far and away above any other submitted.



GROUND PLAN.

Glamorgan County Hall Competition: Plan of the accepted design. Messrs. E. Vincent Harris and Thomas A. Moodie, Architects.

The design placed second, for which a premium of 52*l.* 10*s.* was awarded, is by Messrs. Pearson & Milburn. Here, by the use of a plan of a deeper and narrower type, all the accommodation asked for is provided by two floors above the basement. The merits of this scheme are very similar to those of the last-mentioned, the Council Chamber and its necessary appanage of Committee-rooms, with all provisions for the use of the Councillors, being kept quite distinct from the public offices. The plan may be described as of the gridiron type, consisting of two blocks connected by a third block, this arrangement entailing a deeper set-back at the side of the connecting-block than is provided for in the selected design, where the set-back is only 15 ft. This deeper set-back would undoubtedly be an advantage in the event of buildings being erected on the adjoining sites. If in Messrs. Harris & Moodie's scheme the architectural effect is mainly exterior, here we have an interior feature which would have been extremely effective in execution, a long columned gallery (for it is not a mere utilitarian corridor) leading to the Council Chamber and its appurtenances, of the same height as the rest of the ground floor, and lit by domical skylights; an area is thus formed at the first floor sufficient to light the corridors which give access to the various departments on that floor. All other effects are sacrificed to this, the ruling motive of the design, which is a sound and economical one, and very alluring on plan. The defect is (and it is a defect common to most of the other ten designs which we have had the opportunity of seeing, with the exception of the selected one) that members would have to pass through an avenue of public offices before reaching the Council Chamber. The ground floor contains the Clerk of the Council's and Accountant's departments; the Medical, Education, Surveyor's, and Architect's offices occupy the first and highest floor. The lighting of the drawing office of the Surveyor's department would be very poor; most of the light obtained being borrowed and at the draughtsmen's backs. The elevations are not very successful. The front consists of a recessed centre, with two pavilions at the flanks slightly broken forward. There is a semicircular entrance porch of the Ionic Order, standing on a flight of steps, by which the ground floor level is reached. A tower rises from a balustraded parapet at the centre, very reminiscent in outline of a well-known example at the late Franco-British Exhibition.

We will notice next the design of Messrs. Crouch, Butler, & Savage, which, though not among the three premiated schemes, possesses such a strong family resemblance to the last-mentioned that in any description it must fall naturally into this place. We have here the same "gridiron" type, with the same long central hall, with this difference, that the central hall is here two stories in height, and is partly taken up by the main staircase mounting to the Council Chamber, which is on the first floor. This central hall, top-lighted, serves to light the corridors of the first floor, which open into it in the manner of galleries, just in the same way as the area over the hall in Messrs. Pearson & Milburn's design gives light to their similarly placed corridors. The departments are well kept together. The corridors running at right-angles to the central hall on the ground floor would, we think, be rather dark. The Architect's drawing office is not too well lighted. The elevations are decidedly good. The central feature of the front elevation is an arched recess treated with an Ionic Order, extending the whole height of the building, which consists of three floors above basement. It is a design which possesses great merits; the large hall would be very effective in execution.

The third premium of 31*l.* 10*s.* was awarded to Mr. H. T. Hare. The elevations possess all the refinement which we look for from so acknowledged a master of his craft;

but, in comparison with those which we have just noticed, the plan is more wasteful and scattered, the departments being not so well kept together. Entering through a square vestibule, a spacious entrance-hall is reached, out of which open three parallel corridors, the central one leading to the ante-room of the Council Chamber. The idea of this was, we suppose, to have a separate corridor for the use of Councillors. This advantage is minimised by the position of one of the committee-rooms off one of the two side corridors giving access to the public offices. This arrangement certainly spoils the symmetry of the plan; practically there would not be much objection to it, though it is interesting to see how the placing of the Council Chamber in Messrs. Harris & Moodie's plan (a plan really very similar to the one under consideration) has obviated this difficulty, besides rendering this portion of much easier access from all parts of the building. The Clerk to the Council's offices are placed on the ground floor, as also the offices of the Medical department; on the first are the Accountant's and Education offices, the Architect's and Surveyor's offices occupying the second and top floor. The ½-in. detail of the front elevation is a beautiful piece of draughtsmanship.

Messrs. Russell & Cooper's plan is of somewhat the same type as that of the second premiated design, except that the long and wide central corridor on the ground floor has its place taken by a light area, with two corridors of the ordinary type on either side. The main stairs, semicircular on plan, are splendidly lighted, and would have made a fine feature. The Council Chamber is on the first floor, and designed in a more monumental fashion than those which we have hitherto noticed in the course of our remarks. It is roofed by a low dome, forming the central feature of the front elevation, which consists of a recessed Composite portico. The schemes before described show the caretaker's apartments and clerks' dining-room in the basement; Messrs. Russell & Cooper place theirs on the second floor, a more cheerful position undoubtedly for living quarters, but otherwise less convenient than restricting what we might call the "domestic economy" of the building to the basement alone. It is a plan worth studying; the ½-in. detail is literally most imposing.

Mr. Robert Atkinson's drawings are very beautiful, in the regular "Beaux-Arts" manner; we cannot think his plan, however, very satisfactory or economical. As in the second premiated design, we have here a tower, in this case of a very refined and satisfactory outline. His departments are, in the main, well kept together; it was a mistake, in our opinion, to place the Audit-room on a separate floor from the Accountant's department. The lift is well placed, the drawing offices excellently lighted; the Chairman's retiring-room is too far, for convenience, from the committee-rooms. The elevations are refined and scholarly. Messrs. Warwick & Hall differ from most of the other competitors in making their future Chief Constable's department an integral part of the accommodation at present required, making their central area the drill-yard. Till this portion is built the blank ends of the two blocks forming the sides of the drill-yard would give an unfinished appearance, avoided in the majority of instances by making the portion asked for complete in itself. The blank corridors look awkward on plan. The elevations are sound, if not brilliant.

Mr. A. Gilbert Scott's design is undeniably clever, but with a certain unpractical eccentricity. The plan is very scattered, the front elevation of a peculiar and very original type. A colonnade of very tall and slender rusticated columns of a Tuscan type runs along the front elevation, sheltering a members' terrace, and supporting the high-pitched roof which is brought forward over this feature. It has a quaint and rather German flavour, though the details smack more of our English Renaissance. The remaining two designs are the work of Cardiff architects. Mr. S. H. Phillips has worked out a very compact plan, keeping his departments well together. His basement, unlike any of the other ten designs, extends only under an inconsiderable portion of the superstructure. The elevations are meritorious, but perhaps somewhat too timid for a building of this importance. Mr. Reginald Kirby's elevations, on the other hand, are better than his plan, which however has this distinctive feature, that all rooms are lit from front and back, so that the erection of buildings on the adjoining sites at the side would not affect the light. This precaution, entailing as it does many inherent difficulties, was hardly worth taking, as it was possible to get quite sufficient set-back to minimise this consideration.

We should like to add, that in our illustration of Messrs. Harris & Moodie's plan, we have omitted the block plan of the future Chief Constable's department for the sake of showing the plan of what is at present asked to as large a scale as possible in the space at our disposal.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. R. A. Robinson, Chairman, presiding.

Loans.—It was agreed to lend Poplar Borough Guardians 1,270*l.* for poor law purposes, and sanction was given to the borrowing by Hackney Borough Council of 3,290*l.* for electric lighting, and Paddington Borough Council of 2,700*l.* for paving works.

Theatre Works, etc.—The following proposals were agreed to:—

Cinematograph chamber proposed to be constructed at the rear of the gallery at the Crown Theatre, High-street, Peckham (Messrs. F. Matcham & Co.).

Improvement of the arrangement of the balcony seating and gangways, and of the exit on the o.p. side of the balcony at the Lyric Opera House, Bradmore-grove, Hammersmith (Messrs. F. Matcham & Co.).

The arrangements in connexion with the Fun City to be held in the annexe at Olympia, Hammersmith, and the provision of a new lavatory and of an additional entrance from Blythe-road (Mr. F. H. Payne).

Concert hall proposed to be erected on the east side of Tooting High-street (Messrs. Emden, Egan, & Co.).

Intercepting Traps in House Drains.—The General Purposes Committee reported as follows, the recommendation being agreed to:—

"The President of the Local Government Board has appointed a Departmental Committee to inquire into and report on the use of intercepting traps in house drains, and the Committee have asked that the Medical Officer of Health, the Chief Engineer, and the Architect may give evidence on the subject. As the Council is aware, its by-laws under sect. 202 of the Metropolis Management Act, 1855, require the use of intercepting traps in all house drains, and with this the Medical Officer, the Architect, and the Architect (Education) agree, but the Chief Engineer, although not prepared to express an opinion as the desirableness of abolishing the use of such traps, is of opinion that means of ventilation of sewers should be provided in connexion with such traps on the lines set forth in a resolution passed by a conference of local authorities held in February, 1898. We think that the experience of the officers should be placed at the disposal of the Committee, and recommend that the Medical Officer of Health, the Chief Engineer, the Architect, and the Architect (Education) be authorised to give evidence before the Departmental Committee on the use of intercepting traps in house drains, on the understanding that the Council is in no way committed as to its future policy in the matter."

East India Dock-road.—It was agreed that, in view of the fact that the Poplar Metropolitan Borough Council has not seen its way to contribute any part of the cost of the suggested widening of East India Dock-road between Brunswick-road and Abbott-road, the Council is not prepared to take any further action at present in connexion with the proposed improvement.

Lines of Frontage and Projections.—The Building Act Committee recommended that the Council, in the exercise of its powers under sect. 22 of the London Building Act, 1894, do consent to the erection of buildings abutting upon Azenby-road, Camberwell, to the lines shown on the plan, dated November 13, 1908, submitted with the application of Messrs. Deakin & Cameron, on behalf of Mr. G. H. Stelling.

The recommendation was contrary to the views of the local authority concerned, and after discussion it was referred back to the Committee for further consideration and report.

School Sites.—It was agreed:—

That the estimate of expenditure on capital account of 2,800*l.*, submitted by the Finance Committee in respect of the acquisition of the plot of land adjoining the Upton House Truant School (Hackney, S.), for the purpose of enlarging the school site and erecting laundry and housewifery centres, be approved.

That the estimate of expenditure on capital account of 2,500*l.*, submitted by the Finance Committee in respect of the acquisition of the property, required for the enlargement of the girls' and infants' playground of a London County Council school, and for the provision of a domestic economy centre, be approved.

Schools.—It was agreed:—

That the estimates of expenditure on capital account of 230*l.* and 265*l.*, submitted by the Finance Committee in respect of taking out and lithographing quantities in connexion with the erection of new schools on the Sherington-road site (Greenwich) and the Fairclough-street site (St. George-in-the-East), be approved.

That the estimate of expenditure on capital account of 49*l.*, submitted by the Finance Committee in respect of taking out and lithographing quantities in connexion with the revised scheme for the erection on the Berner-street site (St. George-in-the-East) of manual training, laundry, and housewifery centres, be approved.

London Building Act, 1894.—The Education Committee reported as follows:—

"On October 14, 1908, we reported as to a summons which had been taken out at the South-Western Police Court at the instance of Mr. T. W. Willis, the District Surveyor for Putney and Roehampton, on behalf of the District Surveyors' Association and himself against the Council and the builders, Messrs. Holliday & Greenwood, Ltd., in respect of failure to give notice, under sect. 145 of the London Building Act, 1894, with reference to the Hotham-road school (Wandsworth), and the Committee then agreed that each party should pay their own costs of the case. The case was heard on October 14 and November 10, and judgment was given by the magistrate (Mr. E. W. Garrett) on November 24, against the Council. . . .

We are advised that the matter is one of very great importance, affecting, as it does, the question of the jurisdiction of District Surveyors over school buildings, and we propose, therefore, that an appeal from the magistrate's decision shall be made to the High Court. Sufficient provision for the expenditure involved having been made in vote No. 153 of the annual maintenance votes, 1908-9, we recommend that an appeal be made to the High Court from the decision of the magistrate, with reference to the jurisdiction of District Surveyors under the London Building Act, 1894, over the Council's school buildings; and that the solicitor do take all necessary steps in connexion therewith."

The recommendation was agreed to.

Housing.—It was agreed that expenditure on capital account not exceeding 160*l.* in respect of the erection of a boundary wall and fence, and of repairs to existing boundary walls on the Union-buildings area be sanctioned; that the work be executed by the Works Committee as jobbing work, except as regards the party wall between the Council's property and that of Messrs. Sage & Co.; and that the Housing of the Working Classes Committee be authorised to arrange for Messrs. Sage & Co. to execute the necessary work to the party wall referred to, the Council paying half the cost.

Memorial Tablets.—The Local Government, etc., Committee reported as follows:—

"We consider that the residence of John Delane, Editor of the *Times* from 1841 to 1877, at No. 16, Serjeant's-inn, should be commemorated by means of a memorial tablet. The facts connected with the house referred to have been verified, and the necessary consents to the affixing of a tablet obtained."

They recommended accordingly, and it was agreed.

London County Council (Tramways and Improvements) Bill, 1909.—The Parliamentary Committee reported that the London County Council (Tramways and Improvements) Bill contains proposals for the construction of about 10 miles 6 furlongs 2·10 chains of new tramways, of which about 6 miles 4 furlongs 6·25 chains will be double and 4 miles

Hamburg-America Line Offices: Bronze Panel over Entrance. Mr. J. Wenlock Rollins, Sculptor.

BRONZE PANEL, HAMBURG-AMERICA LINE OFFICES.

THE illustration represents a decorative bronze panel over the entrance of the Hamburg-America Line offices.

The figures symbolise "Germany" and "America," and were modelled by Mr. J. Wenlock Rollins and cast by Messrs. Burton.

Messrs. A. T. Bolton and Stock, Page, & Stock are the joint architects. The front of the building was illustrated in our issue of March 23, 1907.

THE ASSOCIATION OF WATER ENGINEERS.

THE thirteenth annual winter meeting of the Association of Water Engineers was held on Friday and Saturday last week in the rooms of the Geological Society, Burlington House, W., Mr. H. E. Stilgoe, M.Inst.C.E., City Engineer of Birmingham, President, in the chair.

The Measurement of Rainfall.

The minutes of previous meetings having been read and confirmed,

Dr. H. R. Mill, D.Sc., LL.D., President of the Royal Meteorological Society, Director of the British Rainfall Organisation, delivered a lecture on "the Measurement of Rainfall," which was illustrated by lantern-slides. He said that all water on the land came from rain, and the accurate determination of rainfall was the necessary basis of all work which had to do with the utilisation or control of natural water. The determination involved (1) the measurement of the actual amount of rain which fell on the land, (2) the computation of the average fall for a long period, and (3) the allowance to be made for evaporation and other causes of loss in order to arrive at the amount of rainfall available for supply. In measuring rainfall the simplest instruments were the best. Where it was possible, readings of rainfall should be taken daily at 9 a.m., but valuable results were also obtainable from readings made once a month or, in some cases, even less frequently. It was important that water resulting from every form of precipitation be taken into account; then snow, dew, frost, and hail must be collected and measured as well as rain. For this purpose the rain-gauge should have a deep vertical rim as in the Snowdon (5-in.) or Meteorological Office (8-in.) patterns, and the mouth of the gauge should be level and stand 1 ft. above the surface of the ground. Many obsolete or unsatisfactory forms of rain-gauge were on the market, and as they were frequently more expensive than the better and simpler forms they were often purchased in the belief that they were on that account the more accurate. Cases had occurred of records 50 per cent. in excess resulting from the use of a bad gauge. For monthly readings a deep-bodied form of gauge was best, and the Bradford pattern was the most convenient. When a rain-gauge was placed in too exposed a situation or raised on a pole or wall, eddies set up by the wind reduced the catch of rain by about 1 per cent. for every foot above 1 ft. up to about 10 ft.; above that height the amount of loss was erratic. As the amount of loss was not constant, but varied with the force of the wind, this average correction could only be applied to the average of a series of years, and not always then. On moorlands or mountains rain-gauges should be protected from the sweep of the wind by a low circular wall or fence about 2 ft. high and 8 ft. diameter with the gauge in the centre. Some mountain records were very misleading on account of small catch due to over-exposure. Undue shelter by the proximity of buildings or trees was equally objectionable, and must be carefully avoided. The method of entering the rainfall was more important than was commonly thought. The reading taken at 9 a.m. should, to ensure uniformity, be entered to the previous day. This was done by an overwhelming majority of observers, and the neglect of the rule might cause serious discrepancies in the records of the relative wetness or dryness of consecutive months or even years.

There were still many parts of the British Isles totally without rain-gauges, and new records were wanted in order to make it possible to map the monthly and annual rainfall in most of the counties of England and in all the counties of Wales, Scotland, and Ireland. Rules for observing rainfall and forms for recording it were sent gratuitously on application to the British Rainfall Organisation, 62, Camden-square, London, N.W.

Observations on evaporation were still few and often unsatisfactory, and it was most desirable that they should be increased in number and rendered more strictly comparable. Measurements of river-flow and the run-off from catchment areas want to be largely increased and systematised before the natural laws regulating the relation of rainfall to run-off could be established on a scientific basis. In the opinion of the lecturer there ought to be a systematic survey of the amount of water available for supply and power in the British Isles, a task which would involve a great increase in the number of rainfall observations in remote places.

The Chairman moved a hearty vote of thanks to Dr. Mill for his lecture, and said it might be of interest to know that mention was made, in a book by Dr. Plott on "The History of Oxfordshire," published in 1676, that rain-gauges had been kept by Sir Christopher Wren.

Mr. Askwith seconded, and the motion was agreed to, Dr. Mill briefly replying.

The Water Supply of Hythe, Kent.

A paper was then read by Mr. Chris Jones, Borough and Water Engineer, Hythe, on the Water Supply of Hythe. The author described the existing source of supply, and the circumstances leading up to the necessity of the new works now approaching completion. The estimated population of Hythe was 6,266, area 2,698·38 acres, with a range of level from sea-level to 320 ft. above O.D The capital expenditure on the old works was 18,321*l*. The Saltwood Works were situated in the Parish of Saltwood, about 1¼ miles northward of the town, at a level of about 228 ft. above O.D. The well, which was sunk in the lower greensand formation, was 109 ft. deep, passing through the Sandgate and Hythe beds to the Atherfield clay, with two headings driven in the Hythe beds. The dry weather yield was 35,000 gallons per day. Duplicate engines and pumps were provided which delivered the water into a covered reservoir, with a capacity of 500,000 gallons, in the adjoining ground, but 30 ft. higher than the engine-room floor. The cost of these works was 12,000*l*. They were constructed under the powers of the Hythe Corporation Act, 1874. The Town and Eastwell Springs rising in the Hythe beds, about 100 ft. above O.D. were the oldest sources of the town supply; the dry weather yield was 13,000 gallons per day, the water running direct into the old town reservoir. The other source of supply was that known as Blackrock Spring, a mile eastward of the town. The yield was constant, and amounted to 25,000 gallons per day. The total cost, including land, mill rights, reservoirs and mains, was 3,040*l*. This supply was at a sufficient elevation to supply, without pumping, the whole of Seabrook—a residential suburb at the eastern end of the town.

In 1900, owing to the growth of the town, particularly on the higher levels, the question of an additional supply was before the

Corporation, and Mr. William Whitaker, F.R.S., and Mr. T. Hennell, M.Inst.C.E., were consulted. They advised that a well should be sunk into the Folkestone beds of the lower greensand at a point about two miles north-west of the town. The conditions and restrictions imposed by the landowners were, however, of such a character that the Corporation were compelled to abandon this site, and, to enable them to have time to further consider the question, an agreement was made with the Folkestone Water Works Company to supply a minimum quantity of 80,000 gallons per day for a term of five years, at the rate of 1s. per 1,000 gallons. The charge appeared excessive, and the agreement could only be justified in view of the grave risk of a water famine which existed at the time it was entered into.

At the time of the author's appointment in October, 1902, although there was available at least 153,000 gallons per day, which, on the census population of 1901, viz.: 5557, should have given a constant supply of about 27½ gallons per head per day, the supply was intermittent, and constant complaints were received of insufficient supply. The Deacon's Waste-water-Meter system having been introduced, the leakage was found to amount to 3,600 gallons per hour, chiefly in the mains. Upon the author's advice, the distribution system was re-arranged, 2,800 yards of new mains were laid, a large number of dead ends removed, and a circulating system adopted. With these improvements the supply from Folkestone was kept at a minimum.

In 1904 the Corporation decided to promote a bill in Parliament to construct works at Bluehouse in the Parish of Saltwood. The Bill was practically unopposed, an agreement having been arrived at with the landowner at an early stage in the proceedings, and the Royal Assent was obtained in July, 1905. Mr. G. F. Deacon, M.Inst.C.E., acted as consulting engineer to the scheme. The cost of obtaining the Act was 1,269*l.* The Parliamentary estimate was 11,000*l.* for the purchase of land and works, and 1,000*l.* for electric-mains, the Corporation wishing to have power to drive the plant by electricity, if it was thought advisable. The scheme adopted was practically that which was recommended by the late Mr. S. C. Homersham, in a report dated September 1, 1870, the only real difference being that the reservoir was placed at a higher level, and the details of the scheme had of course been modified to suit modern requirements.

The site of the well was about two and a half miles north of the borough, and was on the gault. Prior to sinking the permanent well a 14-in. borehole was sunk, lined with mild steel tubes ⅜-in. thick, with flush screwed joints. At 88 ft. deep the hole was reduced to 12 in. diameter, and 12 in. perforated tubes inserted. At 99 ft. water was found; between 107 ft. 6 in. and 118 ft. a large volume of water with exceedingly fine sand was reached, giving a lot of trouble until the tubes were through. It was found impossible to get the tubes lower than 163 ft., but the boring was carried down to 189 ft. The contractors were Messrs. A. C. Potter & Co.

The permanent well, the contract for which was let to another firm, was 163 ft. deep, the top 70 ft. being in 14-in. brickwork in cement and 9 ft. internal diameter, the first 5 ft. being surrounded with 12 in. of cement concrete in the proportion of six of clean shingle to one of Portland cement, and the next 17 ft. with a foot of clay puddle; this was done to keep out the surface water from the chalk marl. The excavation to water level was all done by hand, and the 22 ft. of brickwork backed with puddle and concrete was built in the excavation then proceeded in 10 ft. lengths; the back 4½-in. ring of each length being built in first, thus obviating any necessity for timbering, after which the inner 9 in. of brickwork was built up, starting from the bottom. The foundation for the brick shaft was of concrete 4 ft. deep and 2 ft. wide. The lower portion of the well was lined with cast-iron cylinders 7 ft. 10 in. internal diameter, and 1 in. thick, in 6 ft. lengths, each cast in one piece. The flanges were 1½ in. thick and 4 in. wide, with brackets 1½ in. thick between each bolt-hole; each cylinder being further strengthened with an annular rib 1 in. thick, 4 in. wide, with brackets 1 in. thick. The cylinders were bolted together with twenty-four bolts 1¼ in. diameter. The joints were faced and made with white hempen plaited gasket well soaked in tallow, and the caulking space filled with rust jointing material well caulked in. The bottom cylinder was 4 ft. deep, and was made of mild steel plates ½ in. thick in one sheet, the joint being covered with a steel plate 4 in. by ½ in. with ⅞ in. rivets 3 in. pitch, and the top formed with 4½ in. by 3 in. by ½ in. mild steel angles, the bottom having a cutting edge. The bottom of the well was sealed by a cast-iron cone 5 ft. high, 6 ft. 4 in. internal diameter at the base, tapering to 14 in. internal diameter at the apex; it was in two parts jointed with flanges 3 in. wide, bolted together with twelve bolts 1 in. diameter, the joint being made in the same manner as described for the cylinders.

Considerable thought was given as to the best means of keeping the fine sand out of the well after completion, and it was decided to adopt Mr. G. F. Deacon's patent strainers. There were twenty-four strainers in each cylinder below the top-water level; bosses were cast on the inside of the cylinders and holes bored for the strainers, which were forced in by hydraulic pressure, a projecting rim on the strainer being caulked over while the pressure was on. The method adopted in sinking the cylinders was as follows:—Timber guides, 30 ft. long, were fixed at the bottom of the brickshaft, the cast-iron cylinders were bolted and jointed to each other at the surface and then lowered into the shaft. From the bottom of the brick-shaft to the water-level the ground was excavated by hand, then a grab was used, the cylinders sinking by their own weight till within 20 ft. of the bottom, at which point it was necessary to use jacks to force the cylinders as the excavation proceeded. The material at this point being very close and compact a large chisel was used to loosen it, and in the author's opinion, it was the use of this tool that caused the damage subsequently discovered to the bottom cylinders. At 6 ft. 6 in. less than the contract depth instructions were given to put in the gravel filter and fix the cast-iron cone, also to put in the concrete to make the well watertight. The space between the cylinders and the brickshaft was filled in with fine concrete.

No pumping took place during the sinking of the cylinders so that the water and sand should not be disturbed thereby. An 8-in. steam-pump was then fixed to pump the well out, so as to commence work on clearing the strainers. Considerable time was occupied in endeavouring to do this, the flow of water being very great. It was ultimately decided to send down a diver to make an examination of the bottom, it being thought that a wooden cover which had been fastened on the top of the cone was broken; the diver, however, reported that the two bottom cylinders had cracks some 3 ft. long, with a maximum opening of ⅜ in. in them. A length of 14 in. cast-iron pipe was attached to the top of the cone and 4 ft. 6 in. of concrete put in the well; and the top of this was grouted, the whole of this work being done by the diver. After sufficient time had been given to allow the concrete to set, the well was pumped out, this time without difficulty.

A 600 gallons tank was fixed at the top of the shaft with a 2-in. wrought-iron pipe carried down the shaft (lengthened as required) in order to supply water under pressure for clearing the strainers. A 2-in. plug cock was fixed at the bottom with two 1-in. flexible tubes each fitted with two 1-in. plug-taps and a screw-fitting to attach to the strainers. The mode of procedure was as follows:—The flexible tubes were attached to a pair of strainers, the main cock was turned on quickly, water being thus forced through the strainers for a short time, when the cock was suddenly shut, and simultaneously the cock on the flexible tube was opened to discharge the sand and water into the well. This process was continued until the water ran freely and clear from every strainer. After each strainer had been treated in this way the plugs were left out in each ring. In connexion with this some curious effects were observed, as, for instance, when clearing one strainer, another on the opposite side of the cylinder, which had previously been running clear, would discharge a large quantity of sand. As each ring was completed the plugs were replaced, and when the bottom was reached the same process was completed, only that the plugs were all left out. This method had been particularly successful in increasing the flow of water, and also in removing the finer particles of sand immediately behind the cylinders. Another great advantage was that if in the future it was found that the strainers were not working satisfactorily, it would be very easy to clear them in the same way. The estimate for the well was 1,690*l.*, which of course was very low and must not be taken as representing the actual cost. It was no doubt owing to the low figure at which the contractor undertook the work that it took so long to complete, and in the end the work was taken out of the contractor's hands and completed by direct labour. It was interesting to note that the average amount of eighteen tenders received for this work was 2,800*l.*, the author's sealed tender, put in at the same time, being 2,818*l.*

The whole of the mains used in connexion with the new works were Stewart's and Lloyd's light lap welded wrought steel pipes with Stewart's patent spigot and socket joint (improved design) for lead and yarn. The tubes were tested to 600 ft. head of water and coated with Dr. Angus Smith's composition inside and out. All mains were laid with 3 ft. cover. Alternative tenders were obtained for steel and cast-iron pipes, and the difference in cost was over 300*l.* (or 1s. per yard) in favour of steel pipes. The author was particularly struck with the ease with which the mains were laid, two men being able to lift a 20-ft. length and place it in the trench without the slightest difficulty. One drawback to the use of such long pipes was that when laid in narrow and winding lanes there was a great deal of waste in cutting to get round even very easy bends. The contract price for the mains was 1,943*l.*

The service reservoir was situated on the side of Tolsford Hill at an elevation of 428 ft. above O.D., which was 100 ft. above the highest part of the borough. It had a capacity of 120,000 gallons, and was constructed in cement concrete, the walls being 5 ft. thick at the bottom and 3 ft. at the springing of the roof arches; the floor 12 in. thick, and the roof, which had a minimum thickness of 8 in., was supported by steel girders 12 in. by 6 in. carried on cast-iron columns. The dept of water was 10 ft. when full. The reservoir was lined with Callender's bitumen sheeting. The outlet pipe was provided with a floating arm regulated to drain off the water 6 in. from the top, and there was also a combined overflow and washout. The soil in which the reservoir was constructed was chalk. The cost of the reservoir was 1,014*l.*

A discussion on the paper followed, in which Messrs. W. Whitaker, Sandeman, Lowcock, P. H. Palmer (Hastings), Hodson, Matthews, White, Lewis (Farnham), Easton (Devonshire), Bird, and Phelps took part.

The discussion was concluded on Friday, and on the following day Mr. Jones replied.

Professor W. R. Smith, M.D., D.Sc., Principal of the Royal Institute of Public Health, then gave a short account of a water-borne outbreak of typhoid fever, which occurred at the Hydropathic establishment at Malvern in the year 1905. There could

be no doubt, he said, that the Malvern outbreak was due to a polluted water supply, the pollution being directly traceable to the overflow from a manhole, which had become temporarily blocked, the pollution of the water being possible consequent upon the faulty construction of the waterpipes.

A short discussion followed.

The President announced that during the coming year three premiums would be offered for papers, one of the value of 10*l.* and the other two of 5*l.* each.

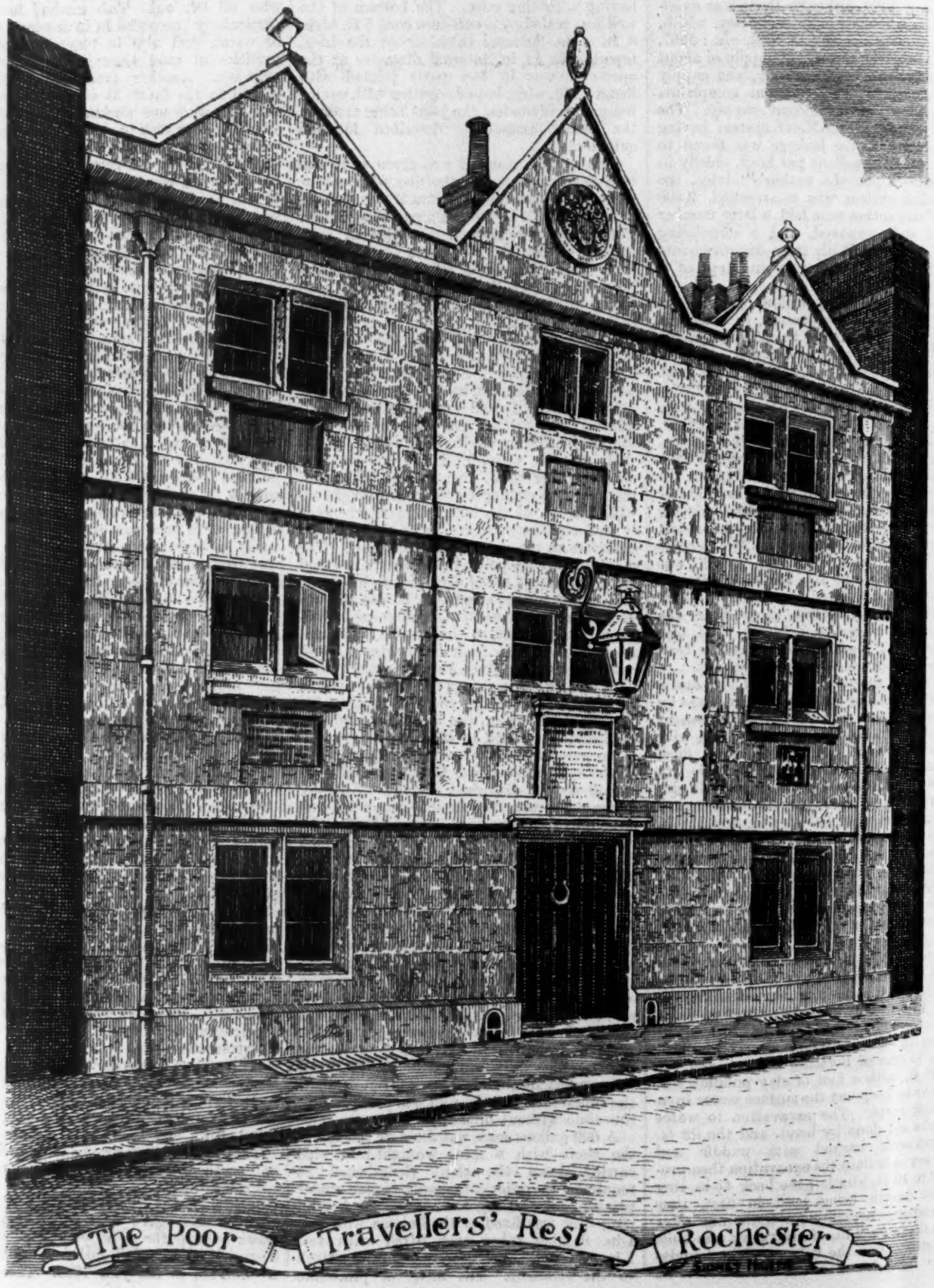
Mr. Percy Griffiths (Secretary) then introduced the subject of the national registration of plumbers, and said the movement for rendering such registration universal throughout the United Kingdom was one which concerned a far larger circle than that represented by the trade itself. Upon the quality of the plumbers' work depended the health of the community at large to an extent scarcely appreciated by the public. Defects in the arrangement and execution of water and sanitary fittings had been responsible for an enormous amount of disease and even loss of life, owing to the fact that each individual case might become the starting-point for an epidemic, the limits of which could not possibly be foreseen.

Mr. E. Antony Lees (Secretary of the Birmingham Water Department) expressed the opinion that the national registration of plumbers would prove of benefit to the water authorities throughout the country and at the same time help forward a movement that would strongly tend to the promotion of public health.

Several other members of the Association also spoke of the importance of the new movement.

THE POOR TRAVELLERS' REST, ROCHESTER.

On the north side of the narrow high-street of Rochester stands the house immortalised by Charles Dickens in one of the Christmas numbers of *Household Words*. The front of the building has been somewhat restored, but the gallery, occupying one side of an open space in the rear,



erected for the comfort of the poor wayfarers, is part of the original foundation.

As is recorded by the inscription on an ornamental tablet, one of the worthy Mayors of Rochester endeavoured to perpetuate the memory of the founder as follows:—

"Richard Watts, Esq., by his will dated August 22, 1579, founded this charity for six poor travellers who not being rogues or proctors may receive gratis for one night lodging, entertainment, and fourpence each. In testimony of his munificence, in honour of his memory, and inducement to his example, Nathl. Hood, Esq., the present mayor, has caused this stone gratefully to be renewed and inscribed A.D. 1771."

SIDNEY HEATH.

THE SOCIETY OF ARCHITECTS.

THE usual monthly meeting of the Society of Architects was held on Thursday last week at Staple-inn-buildings, Holborn, W.C., Mr. G. E. Bond, President, in the chair, when Sir J. Benjamin Stone, M.P. (honorary member), lectured on "Eastern Buildings."

The minutes of the last meeting having been read and confirmed, and some candidates for membership having been elected, the President briefly introduced the lecturer.

Sir Benjamin Stone, whose lecture was illustrated by a large number of lantern slides of buildings, etc., from photographs taken by himself, said that he had been put down to read a paper to them, but what he was about to do was to give them a selection of the photographs he had taken during his recent travels in Turkey and Asia Minor. The views he should show were not strictly architectural, but they had more than an architectural interest, because they were what he called history photographs. He was endeavouring to put into pictorial form the current history of the time, and he asked them to believe that they saw not only the chief views of Constantinople and other places, but that they felt the atmosphere of the various places. He was in Constantinople just on the eve of the change in the Turkish Government. Practically he saw the expiring efforts of old Turkey to maintain their ground, and he saw the movement for the revolution which had taken place since. Although he had the Government countenance, still he was prevented in some cases from taking photographs and entering buildings; and though he was too quick for the guards and soldiers in taking exterior views, the difficulty was to get inside the mosques. His special reason for visiting Turkey was because of the recent acquisition of some famous tombs—the Sidon tombs; but he found great difficulty in getting into the museum to see them. But, in regard to all such difficulties, he was glad to know that methods were now happily changed in Turkey.

The lecturer then showed a number of views of mosques, and directed attention to the evolution of the mosque under different influences. The Church of Santa Sophia at Constantinople was a Christian church in early times, and right through the Byzantine emperors; the minarets were added after the conquest of the city and the occupation by the Turks. The ordinary Mahomedan mosque was not glorious within like Santa Sophia, and the beautiful internal decoration of that building owed its origin to Christian influences.

The lecturer showed a large and interesting collection of views, and referred to some of the characteristics of the buildings, etc., illustrated, such as the pulpit or room at Santa Sophia used by the Sultan when he went there; the Mosque of Hamid, with its six minarets; the Mosque of Selim the Great; and the ancient underground reservoirs for the supply of water to the city. Constantinople had no regular water supply, and a supply was brought by conduits from a distance, and this was stored in reservoirs underground. In olden times there were a number of these reservoirs underground, and while some of these had gone into decay, some could still be seen, and they were very beautiful. The lecturer showed one of these cisterns, and said that the place was now used by the silk weavers, and the building was like some beautiful old church.

In the Mosque of Mahomet Ali at Cairo some beautiful minarets were to be seen, and a view of the mosque and the forecourt of the great mosque at Constantinople of Suliman the Magnificent were shown. There were many indications that the builders of this period—the XIVth century—had reached a high degree of excellence in their work; the carved and inlay work of the period was very beautiful and most interesting.

The columns of Luxor in Egypt, a view of which he showed, exhibited the grandeur of effect of repeated columns in good proportions, and this was seen in various Eastern examples.

Amongst other views shown were: part of the old and beautiful Seraglio at Constantinople, now used as part of the museum; the Mosque of Kait Bey at Cairo, where the minaret was treated in a more ornamental way and with a finer kind of decoration—the decoration of the dome was of a most elaborate kind, verses from the Koran being used for the purpose; and the mosaic mosque at Constantinople, originally a Byzantine Christian church, the minarets being added afterwards—it was one of the most famous churches for interior decoration, which was covered with whitewash. It was much thought of by the Greek Church, and when the Emperor William of Germany visited Constantinople the whitewash was removed so that he might see the decoration, but as soon as he had departed the decorations were recovered in the same way.

Many other interesting views were shown, including the ancient walls of Constantinople, the old Genoese house and quarters, the narrow streets and wooden houses of Stamboul, and the bridge and great thoroughfare between Stamboul and the newer part of Constantinople.

As to the famous tombs he went to see, they were of great potentates. There were seventeen of them, and one of them, called a sarcophagus of Alexander, though that was not the proper name for it, might be considered the most beautiful work of the kind in the world, and the work, done some 2,500 years ago, was in a perfect condition. There was no record of who was buried in these tombs or who made them, and when discovered accidentally they were hidden in the side of the mountain rock. All the tombs were beautiful, but not all were so excellent in workmanship. The action of the horses in some was very fine, the deep under-cutting being particularly noticeable.

Views of buildings or remains at Broussa and Nicea were also shown, and these, the lecturer said, were well worth an expedition to see.

Mr. G. A. T. Middleton proposed a hearty vote of thanks to the lecturer, and referred to the work Sir Benjamin Stone is engaged in of securing photographs and records of things which were passing away. The work of Sir Benjamin in connexion with the National Records Association was a great one. All buildings which were likely to disappear were carefully preserved by photographs, which were deposited in the British Museum. This work would be of great use to future architects. From what existed in this country we knew how rich it had been in its architectural works, but very few records remained of buildings which had gone, particularly of their detail. Mr. Middleton also referred to the beauty of the photographs they had seen and to the character of the tombs and the bastion walls.

The motion, which was heartily agreed to, was seconded by Mr. Coventry Dick, and supported by Mr. G. Scammel (who suggested that those who took photographs might send copies to the National Records Association) and Mr. Kershaw (who said that other cities might make records as well).

Sir Benjamin Stone, in reply, said this work would be much appreciated a generation or two hence. There were many things about the past which we should have liked to know which photographic records would have told us.

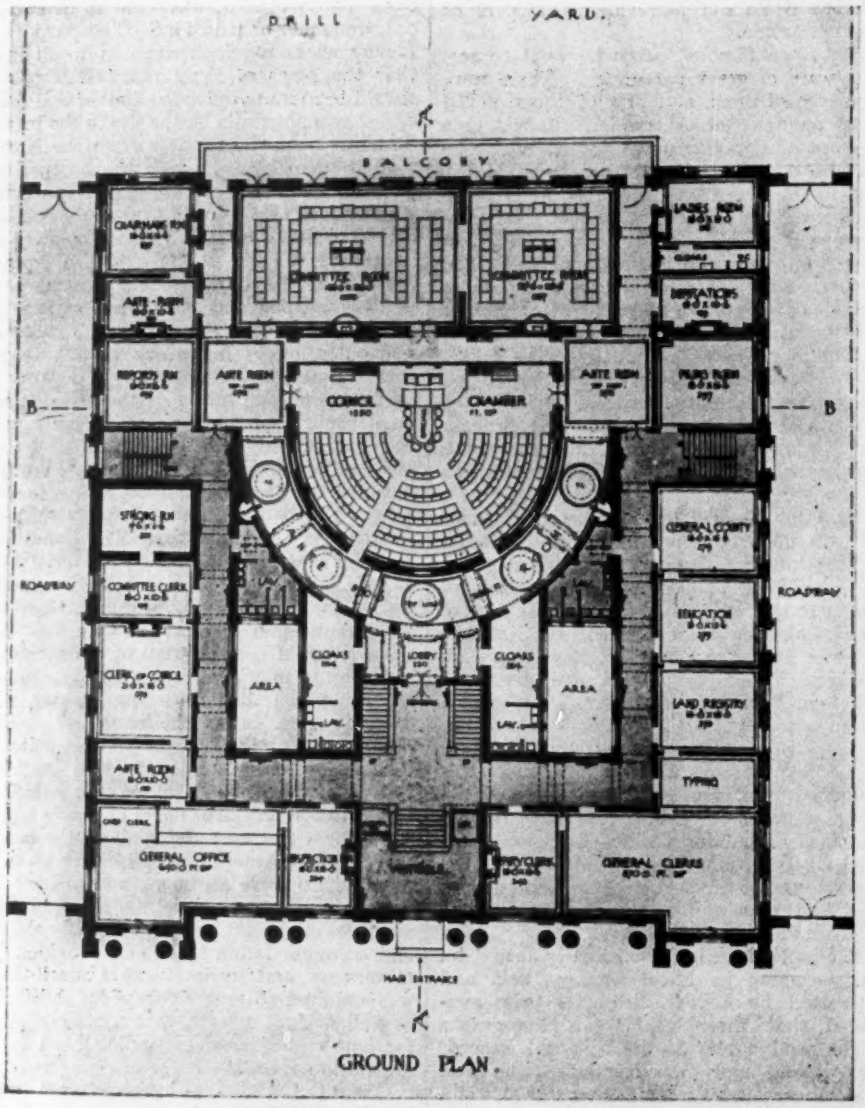
The meeting then terminated.

GLAMORGAN COUNTY HALL COMPETITION.

FEW sites could be more favourable to architectural display than Cathays Park, Cardiff, which is gradually becoming a centre of architectural interest second to none in the provinces; and we may safely say that the design selected for the Glamorgan County Hall need not fear comparison with the buildings which have been already erected in its near neighbourhood. Our readers are doubtless familiar with the appearance of the new municipal buildings designed by Messrs. Lanchester, Stewart, & Rickards, and the new Registry of the University of Wales, the work of Messrs. Wills & Anderson. A high standard, therefore, was set, a fact duly appreciated by the majority of competitors. In our issue of July 25 we gave a detailed description of the site; it will be sufficient therefore in the present instance briefly to recapitulate the main features. Three tree-planted avenues cross Cathays Park in a parallel direction; the Central-avenue is already partly occupied by the Law Courts and the Registry of the University on the one side, and the City Hall on the other side. The site of the new County Hall is on a plot of land adjoining the Registry, having a a frontage of 154 ft. 6 in. on the Central-avenue, and extending back to the North-road a distance of 280 ft. The building-line is set back 25 ft. from the Central-avenue and 30 ft. from the North-road. Additional accommodation for a future Chief Constable's department was to be allowed for on the site; this portion of the scheme, however, to quote from the Conditions, was "not to be carried out, designed, or paid for." The purpose of stating these requirements was to indicate that the plans of the County Hall proper should be so contrived as to admit of this being added symmetrically on the site in the future. Standing about 50 ft. back from the North-road is an oak-tree, which the competitors were directed to leave untouched "at present," which might be construed as until the erection of the Chief Constable's department, thus suggesting a limit to the extent of ground covered by the object of the present competition. Upon this stipulation various interpretations were placed, some schemes religiously preserving every branch intact, others necessitating a complete docking of its foliage on one side. As the unbuilt land on either side of the site may be built on in the future, sufficient set-back had to be allowed for on the sides for light. For the purposes of the competition the site was assumed to be level, and it is practically so, though not altogether flat. The Conditions required that the total cost should not exceed 45,000*l.*, "above the basement floor, including works for water-supply, heating, lighting, and ventilation"; and added that the Council would bear the cost of the necessary works up to that level, which, in consequence of anticipated difficulties from water, was fixed at 4 ft. below the road level. This restriction, it will be apparent, necessitated the placing of the ground floor at the least 7 ft. above the road level, to give sufficient height to the basement floor; and gave ample scope for a feature to be made of the necessary flight of steps. A passenger-lift was required, to serve all floors, and to have an entrance at street level, so that infirm members might not have to go up any stairs; and accommodation had to be provided for motor-cars and cycles. The Council Hall was required to seat eighty-eight members, as well as eight officers, with accommodation for four reporters, and standing room for a deputation of ten.

Out of 198 designs received, ten were selected for the consideration of the Committee; these were on view at the Cardiff City Hall till Monday, December 15.

The design recommended by the assessor, Mr. W. D. Caröe, was that of Messrs. E. Vincent Harris & T. A. Moodie, to whom the first premium of 105*l.* was awarded. The plan is admirably simple and straightforward; an open area in the centre, partly occupied on the ground floor by the Council Chamber and members' lobby. Entrance is gained through a handsome vestibule, from which a short flight of steps leads to the general ground-floor level. We think perhaps that the effect of this portion will be somewhat marred by the lift and telephone-boxes placed on either side of these steps, of which, by the way, we can find no trace in the sections. Arrived at the top of this flight we are in the staircase-hall; on either side branch out the corridors leading to the Clerk of the Council's offices; facing the entrance are the main stairs, running in two parallel flights to a landing, beneath which the members' lobby is at once entered, without any intervening length of corridor. This is one of the outstanding excellencies of the design, the readiness of access to what we may call the legislative portion of the building, and the way in which the committee-rooms (two of which were required: one to seat forty and one to seat twenty-five), together with the Chairman's private retiring-room, and all ante-rooms and lavatories, are grouped round their centre, the Council Chamber, and kept separate and distinct from the public offices. An important item in this latter-day planning of municipal premises, the provisions of adequate accommodation for lady councillors, is well attended to. It will be at once apparent from the ground plan, which we append, how the placing of the Council Chamber, semicircular on plan, within the central area, with the corridor sweeping round on the outside of the apse, if we may so term it, brings with it the solution of the whole problem; this is the root idea, in which its superiority over the other designs submitted consists; the rest follows naturally and easily, with the minimum of wasted space. On the first-floor are placed the Education and Accountant's offices, to which access is given by a corridor excellently lighted from the central area. The second and top floors follow the same plan. Here are the offices of the Medical department, the County Surveyor, and the School Architect. The drawing-offices of these two latter departments, together with the Contractor's Inspection of Plans room, ranged along the front with a northerly aspect are lit to the best advantage by top-lights, the treatment of the elevation allowing here of a blank attic story above the main cornice. Access is gained to the drill-yard from the Central-avenue by two side roads, the future Chief Constable's department being placed at the rear facing the North-road. The elevations, if not of remarkable originality, show a sense of style which is very acceptable in these days. Here is no half-hearted parleying with modules and minutes; but a frontispiece of fourteen Corinthian columns, of irreproachable propriety, serves to remind us that the Roman Ionic Order is not our sole inheritance from the days of the Renaissance, and that the plagiarism of an educated taste may be more tolerable than an originality which knows not the Muses. Among the ten designs selected for the final decision, there may be, and undoubtedly are, finer elevations than this; but we have no hesitation in recording our opinion that the plan is far and away above any other submitted.



GROUND PLAN.

Glamorgan County Hall Competition: Plan of the accepted design. Messrs. E. Vincent Harris and Thomas A. Moodie, Architects.

The design placed second, for which a premium of 52*l.* 10*s.* was awarded, is by Messrs. Pearson & Milburn. Here, by the use of a plan of a deeper and narrower type, all the accommodation asked for is provided by two floors above the basement. The merits of this scheme are very similar to those of the last-mentioned, the Council Chamber and its necessary appanage of Committee-rooms, with all provisions for the use of the Councillors, being kept quite distinct from the public offices. The plan may be described as of the gridiron type, consisting of two blocks connected by a third block, this arrangement entailing a deeper set-back at the side of the connecting-block than is provided for in the selected design, where the set-back is only 15 ft. This deeper set-back would undoubtedly be an advantage in the event of buildings being erected on the adjoining sites. If in Messrs. Harris & Moodie's scheme the architectural effect is mainly exterior, here we have an interior feature which would have been extremely effective in execution, a long columned gallery (for it is not a mere utilitarian corridor) leading to the Council Chamber and its appurtenances, of the same height as the rest of the ground floor, and lit by domical skylights; an area is thus formed at the first floor sufficient to light the corridors which give access to the various departments on that floor. All other effects are sacrificed to this, the ruling motive of the design, which is a sound and economical one, and very alluring on plan. The defect is (and it is a defect common to most of the other ten designs which we have had the opportunity of seeing, with the exception of the selected one) that members would have to pass through an avenue of public offices before reaching the Council Chamber. The ground floor contains the Clerk of the Council's and Accountant's departments; the Medical, Education, Surveyor's, and Architect's offices occupy the first and highest floor. The lighting of the drawing office of the Surveyor's department would be very poor; most of the light obtained being borrowed and at the draughtsmen's backs. The elevations are not very successful. The front consists of a recessed centre, with two pavilions at the flanks slightly broken forward. There is a semicircular entrance porch of the Ionic Order, standing on a flight of steps, by which the ground floor level is reached. A tower rises from a balustraded parapet at the centre, very reminiscent in outline of a well-known example at the late Franco-British Exhibition.

We will notice next the design of Messrs. Crouch, Butler, & Savage, which, though not among the three premiated schemes, possesses such a strong family resemblance to the last-mentioned that in any description it must fall naturally into this place. We have here the same "gridiron" type, with the same long central hall, with this difference, that the central hall is here two stories in height, and is partly taken up by the main staircase mounting to the Council Chamber, which is on the first floor. This central hall, top-lighted, serves to light the corridors of the first floor, which open into it in the manner of galleries, just in the same way as the area over the hall in Messrs. Pearson & Milburn's design gives light to their similarly placed corridors. The departments are well kept together. The corridors running at right-angles to the central hall on the ground floor would, we think, be rather dark. The Architect's drawing office is not too well lighted. The elevations are decidedly good. The central feature of the front elevation is an arched recess treated with an Ionic Order, extending the whole height of the building, which consists of three floors above basement. It is a design which possesses great merits; the large hall would be very effective in execution.

The third premium of 31*l.* 10*s.* was awarded to Mr. H. T. Hare. The elevations possess all the refinement which we look for from so acknowledged a master of his craft;

but, in comparison with those which we have just noticed, the plan is more wasteful and scattered, the departments being not so well kept together. Entering through a square vestibule, a spacious entrance-hall is reached, out of which open three parallel corridors, the central one leading to the ante-room of the Council Chamber. The idea of this was, we suppose, to have a separate corridor for the use of Councillors. This advantage is minimised by the position of one of the committee-rooms off one of the two side corridors giving access to the public offices. This arrangement certainly spoils the symmetry of the plan; practically there would not be much objection to it, though it is interesting to see how the placing of the Council Chamber in Messrs. Harris & Moodie's plan (a plan really very similar to the one under consideration) has obviated this difficulty, besides rendering this portion of much easier access from all parts of the building. The Clerk to the Council's offices are placed on the ground floor, as also the offices of the Medical department; on the first are the Accountant's and Education offices, the Architect's and Surveyor's offices occupying the second and top floor. The ½-in. detail of the front elevation is a beautiful piece of draughtsmanship.

Messrs. Russell & Cooper's plan is of somewhat the same type as that of the second premiated design, except that the long and wide central corridor on the ground floor has its place taken by a light area, with two corridors of the ordinary type on either side. The main stairs, semicircular on plan, are splendidly lighted, and would have made a fine feature. The Council Chamber is on the first floor, and designed in a more monumental fashion than those which we have hitherto noticed in the course of our remarks. It is roofed by a low dome, forming the central feature of the front elevation, which consists of a recessed Composite portico. The schemes before described show the caretaker's apartments and clerks' dining-room in the basement; Messrs. Russell & Cooper place theirs on the second floor, a more cheerful position undoubtedly for living quarters, but otherwise less convenient than restricting what we might call the "domestic economy" of the building to the basement alone. It is a plan worth studying; the ½-in. detail is literally most imposing.

Mr. Robert Atkinson's drawings are very beautiful, in the regular "Beaux-Arts" manner; we cannot think his plan, however, very satisfactory or economical. As in the second premiated design, we have here a tower, in this case of a very refined and satisfactory outline. His departments are, in the main, well kept together; it was a mistake, in our opinion, to place the Audit-room on a separate floor from the Accountant's department. The lift is well placed, the drawing offices excellently lighted; the Chairman's retiring-room is too far, for convenience, from the committee-rooms. The elevations are refined and scholarly. Messrs. Warwick & Hall differ from most of the other competitors in making their future Chief Constable's department an integral part of the accommodation at present required, making their central area the drill-yard. Till this portion is built the blank ends of the two blocks forming the sides of the drill-yard would give an unfinished appearance, avoided in the majority of instances by making the portion asked for complete in itself. The blank corridors look awkward on plan. The elevations are sound, if not brilliant.

Mr. A. Gilbert Scott's design is undeniably clever, but with a certain unpractical eccentricity. The plan is very scattered, the front elevation of a peculiar and very original type. A colonnade of very tall and slender rusticated columns of a Tuscan type runs along the front elevation, sheltering a members' terrace, and supporting the high-pitched roof which is brought forward over this feature. It has a quaint and rather German flavour, though the details smack more of our English Renaissance. The remaining two designs are the work of Cardiff architects. Mr. S. H. Phillips has worked out a very compact plan, keeping his departments well together. His basement, unlike any of the other ten designs, extends only under an inconsiderable portion of the superstructure. The elevations are meritorious, but perhaps somewhat too timid for a building of this importance. Mr. Reginald Kirby's elevations, on the other hand, are better than his plan, which however has this distinctive feature, that all rooms are lit from front and back, so that the erection of buildings on the adjoining sites at the side would not affect the light. This precaution, entailing as it does many inherent difficulties, was hardly worth taking, as it was possible to get quite sufficient set-back to minimise this consideration.

We should like to add, that in our illustration of Messrs. Harris & Moodie's plan, we have omitted the block plan of the future Chief Constable's department for the sake of showing the plan of what is at present asked to as large a scale as possible in the space at our disposal.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. R. A. Robinson, Chairman, presiding.

Loans.—It was agreed to lend Poplar Borough Guardians 1,270*l.* for poor law purposes, and sanction was given to the borrowing by Hackney Borough Council of 3,290*l.* for electric lighting, and Paddington Borough Council of 2,700*l.* for paving works.

Theatre Works, etc.—The following proposals were agreed to:—

Cinematograph chamber proposed to be constructed at the rear of the gallery at the Crown Theatre, High-street, Peckham (Messrs. F. Matcham & Co.).

Improvement of the arrangement of the balcony seating and gangways, and of the exit on the o.p. side of the balcony at the Lyric Opera House, Bradmore-grove, Hammersmith (Messrs. F. Matcham & Co.).

The arrangements in connexion with the Fun City to be held in the annexe at Olympia, Hammersmith, and the provision of a new lavatory and of an additional entrance from Blythe-road (Mr. F. H. Payne).

Concert hall proposed to be erected on the east side of Tooting High-street (Messrs. Emden, Egan, & Co.).

Intercepting Traps in House Drains.—The General Purposes Committee reported as follows, the recommendation being agreed to:—

"The President of the Local Government Board has appointed a Departmental Committee to inquire into and report on the use of intercepting traps in house drains, and the Committee have asked that the Medical Officer of Health, the Chief Engineer, and the Architect may give evidence on the subject. As the Council is aware, its by-laws under sect. 202 of the Metropolis Management Act, 1855, require the use of intercepting traps in all house drains, and with this the Medical Officer, the Architect, and the Architect (Education) agree, but the Chief Engineer, although not prepared to express an opinion as the desirableness of abolishing the use of such traps, is of opinion that means of ventilation of sewers should be provided in connexion with such traps on the lines set forth in a resolution passed by a conference of local authorities held in February, 1898. We think that the experience of the officers should be placed at the disposal of the Committee, and recommend that the Medical Officer of Health, the Chief Engineer, the Architect, and the Architect (Education) be authorised to give evidence before the Departmental Committee on the use of intercepting traps in house drains, on the understanding that the Council is in no way committed as to its future policy in the matter."

East India Dock-road.—It was agreed that, in view of the fact that the Poplar Metropolitan Borough Council has not seen its way to contribute any part of the cost of the suggested widening of East India Dock-road between Brunswick-road and Abbott-road, the Council is not prepared to take any further action at present in connexion with the proposed improvement.

Lines of Frontage and Projections.—The Building Act Committee recommended that the Council, in the exercise of its powers under sect. 22 of the London Building Act, 1894, do consent to the erection of buildings abutting upon Azenby-road, Camberwell, to the lines shown on the plan, dated November 13, 1908, submitted with the application of Messrs. Deakin & Cameron, on behalf of Mr. G. H. Stelling.

The recommendation was contrary to the views of the local authority concerned, and after discussion it was referred back to the Committee for further consideration and report.

School Sites.—It was agreed:—

That the estimate of expenditure on capital account of 2,800*l.*, submitted by the Finance Committee in respect of the acquisition of the plot of land adjoining the Upton House Truant School (Hackney, S.), for the purpose of enlarging the school site and erecting laundry and housewifery centres, be approved.

That the estimate of expenditure on capital account of 2,500*l.*, submitted by the Finance Committee in respect of the acquisition of the property, required for the enlargement of the girls' and infants' playground of a London County Council school, and for the provision of a domestic economy centre, be approved.

Schools.—It was agreed:—

That the estimates of expenditure on capital account of 230*l.* and 265*l.*, submitted by the Finance Committee in respect of taking out and lithographing quantities in connexion with the erection of new schools on the Sherington-road site (Greenwich) and the Fairclough-street site (St. George-in-the-East), be approved.

That the estimate of expenditure on capital account of 49*l.*, submitted by the Finance Committee in respect of taking out and lithographing quantities in connexion with the revised scheme for the erection on the Berner-street site (St. George-in-the-East) of manual training, laundry, and housewifery centres, be approved.

London Building Act, 1894.—The Education Committee reported as follows:—

"On October 14, 1908, we reported as to a summons which had been taken out at the South-Western Police Court at the instance of Mr. T. W. Willis, the District Surveyor for Putney and Roehampton, on behalf of the District Surveyors' Association and himself against the Council and the builders, Messrs. Holliday & Greenwood, Ltd., in respect of failure to give notice, under sect. 145 of the London Building Act, 1894, with reference to the Hotham-road school (Wandsworth), and the Committee then agreed that each party should pay their own costs of the case. The case was heard on October 14 and November 10, and judgment was given by the magistrate (Mr. E. W. Garrett) on November 24, against the Council. . . .

We are advised that the matter is one of very great importance, affecting, as it does, the question of the jurisdiction of District Surveyors over school buildings, and we propose, therefore, that an appeal from the magistrate's decision shall be made to the High Court. Sufficient provision for the expenditure involved having been made in vote No. 153 of the annual maintenance votes, 1908-9, we recommend that an appeal be made to the High Court from the decision of the magistrate, with reference to the jurisdiction of District Surveyors under the London Building Act, 1894, over the Council's school buildings; and that the solicitor do take all necessary steps in connexion therewith."

The recommendation was agreed to.

Housing.—It was agreed that expenditure on capital account not exceeding 160*l.* in respect of the erection of a boundary wall and fence, and of repairs to existing boundary walls on the Union-buildings area be sanctioned; that the work be executed by the Works Committee as jobbing work, except as regards the party wall between the Council's property and that of Messrs. Sage & Co.; and that the Housing of the Working Classes Committee be authorised to arrange for Messrs. Sage & Co. to execute the necessary work to the party wall referred to, the Council paying half the cost.

Memorial Tablets.—The Local Government, etc., Committee reported as follows:—

"We consider that the residence of John Delane, Editor of the *Times* from 1841 to 1877, at No. 16, Serjeant's-inn, should be commemorated by means of a memorial tablet. The facts connected with the house referred to have been verified, and the necessary consents to the affixing of a tablet obtained."

They recommended accordingly, and it was agreed.

London County Council (Tramways and Improvements) Bill, 1909.—The Parliamentary Committee reported that the London County Council (Tramways and Improvements) Bill contains proposals for the construction of about 10 miles 6 furlongs 2·10 chains of new tramways, of which about 6 miles 4 furlongs 6·25 chains will be double and 4 miles

1 furlong 5·85 chains single line, also for the reconstruction of about 5 miles 3 furlongs 9·40 chains of existing tramways, of which 5 miles 2 furlongs 1·15 chains will be double and 1 furlong 8·25 chains single line, and for the carrying out of improvements in connexion therewith and other matters. The Bill is divided into six parts:—

Part II.—Tramways—This part contains proposals for the construction of new tramways as follows—

(1) Double line between Harrow-road and Maida-vale *viâ* Sutherland-avenue.

(2 and 2*a*). Double line between Clerkenwell-road and Charterhouse-street, *viâ* Farringdon-road.

(3) Single line between City-road and New North-road, *viâ* Shepherdess-walk and Shaftesbury-street.

(4) Single line between Essex-road and Kingsland-road, *viâ* Englefield-road and Stamford-road.

(5) Single junction line between the existing tramways in Kingsland-road and Dalston-lane.

(6) Single line between Kingsland High-street and Amhurst-road, *viâ* Ridley-road and Dalston-lane.

(7) Partly double and partly single line between Mare-street and Cadogan-terrace, *viâ* Victoria Park-road.

(8 and 8*a*) Double line between Battersea Park-road and King's-road, Chelsea, *viâ* Battersea Bridge-road, Battersea Bridge, and Beaufort-street.

(9, 9*a*, 9*b*, 9*d*, 9*e*, and 9*g*) Partly double and partly single line between Putney Bridge and Lower Richmond-road and York-road and Garratt-lane, Wandsworth, *viâ* High-street, Putney, Upper Richmond-road, West-hill, and High-street, Wandsworth.

(9*c*) Single line between High-street, Putney, and Upper Richmond-road, *viâ* Putney Bridge-road and Oxford-road.

(9*f* and 9*h*) Single line between West-hill and York-road and Garratt-lane, Wandsworth, *viâ* Broomhill-road, a new street, and Buckhold-road.

(10 and 10*a*) Double line between Mitcham-road and Streatham High-road, *viâ* Southcroft-road and Mitcham-lane.

(11) Double line extension of the existing tramways in Tooley-street along that thoroughfare to Duke-street.

(12) Double line between Evelyn-street, Deptford, and Nelson-street, Greenwich, *viâ* Creek-road, Bridge-street, and Church-street.

Power is also sought in this part to enable the Council to reconstruct the following existing tramways for electric traction:—

(1) The tramways between Bermondsey-street and High-street, Deptford, *viâ* Tooley-street, Dockhead, Parker's-row, Jamaica-road, Union-road, Lower-road, and Evelyn-street.

(2) The tramways between Rainton-road and Chapel-street, *viâ* Woolwich-road, Albion-road, and George-street.

(3) The tramways between Southwood-lane and Holloway-road, *viâ* High-street, Hornsey, and Highgate-hill.

Power is also sought to enable the Council to use the overhead system of traction on the new tramways, Nos. 1, 9, and 9*a*—*h*, above referred to.

Part III.—Street Works.—This part seeks authority to carry out a number of street widenings and improvements in connexion with the proposals for new tramways and the reconstruction of existing tramways, and provides for certain contributions by the metropolitan borough councils concerned.

Part IV.—Purchase of Lands.—This part empowers the Council to purchase lands required for the purposes of improvements.

Part V.—Extensions of Time.—This part extends the time limited for the construction of tramways between Woolwich and Eltham, and the execution of widenings at Queen's-road, Deptford, authorised by the London County Council (Tramways and Improvements) Act, 1902, and also for the compulsory purchase of certain lands for widenings at Stanstead-road, Brockley-rise, and Lewisham-road, and at Lewisham High-road and Shardeloes-road, authorised by the London County Council (Tramways and Improvements) Acts, 1904 and 1906 respectively.

Part VI.—Miscellaneous and Financial.—This part deals with certain miscellaneous matters, including the removal of the restriction on the working of tramways across Hammersmith-broadway, the fixing of stopping-places, and the removal of broken-down vehicles, etc., obstructing tramcars, the confirmation of the agreement for the purchase of the Highgate-hill tramways, and other provisions relating to those tramways.

The estimated cost of the proposals is as follows:—New tramways, etc., 638,500*l.*; new streets, street improvements, etc., 451,500*l.*

Amendment of the London Building Act.—The Parliamentary Committee reported that they had prepared the General Powers Bill to be introduced into Parliament in the session of 1909. Power is sought to permit the erection of buildings of iron or steel skeleton construction subject to certain provisions prescribed in the Bill to regulate the construction of such buildings, and to enable the Council to make regulations with respect to the construction of buildings wholly or partly of reinforced concrete.*

Mr. Dew said he did not think the Bill provided those safeguards that it should. In view of what was being done with ferro-concrete construction, it was not reasonable to expect the same thickness for walls as was formerly the case, but he asked the Council to be careful that, while giving a certain freedom to constructors, it should be made necessary to use the very best materials. It was proposed to give permission to erect buildings with walls of only a few inches thickness, and the materials used should be suitable to withstand the weight.

Mr. Phillimore moved that words be inserted to ensure this, and Mr. Harris seconded.

Mr. Goldsmith, Chairman of the Building Act Committee, said that the words were unnecessary. Great changes might take place in regard to this method of construction, and if hard-and-fast regulations were required the Council would have to go to Parliament in order to get fresh amendments. District Surveyors were now required to have a knowledge of this form of construction, and careful plans would have to be submitted of such buildings which would not be passed unless the Surveyors were not thoroughly satisfied with the strength of the materials to be used.

Mr. Andrew Taylor said that the Council ought to take the advice of those professional bodies concerned in this form of construction.

Mr. Goldsmith said that this had been done, and the Royal Institute of British Architects, the Institution of Civil Engineers, the Institution of Electrical Engineers, the London Master Builders' Association, the Surveyors' Institution, and the District Surveyors' Association had all been consulted.

After further discussion, the amendment was defeated, twenty-eight voting for, and thirty-six against.

Captain Hemphill said he did not think the District Surveyors should receive extra fees as proposed; nor did he think they were the right people to deal with such forms of construction, as their training did not qualify them for the work. If they had to call in the assistance of an engineer, why should not the engineer be paid, and why should the Surveyor receive a fee for work he would not do?

Mr. Pilditch said that the clause dealing with reinforced concrete would permit people to build in a way that had never been permitted before. The Bill was an enabling and not a disabling one; it was a good one for those who build, and the fees to be paid to the District Surveyors would be properly considered.

Other Parliamentary Powers.—The same Committee stated that power was sought in the Bill to extend the time limited for the construction of works and acquisition of lands as follows:—

Works.—(i.) Thames-embankment extension and improvements at Westminster, authorised by the London County Council (Improvements) Act, 1900; (ii.) widenings at Blackheath-road, Blackheath-hill, and New-road, Woolwich, authorised by the London County Council (Improvements) Act, 1900. *Lands.*—(i.) Widenings at Southampton-row, authorised by the London County Council (Tramways and Improvements) Act, 1903; (ii.) reconstruction of Catford Bridge, authorised by the London County Council (General Powers) Act, 1906; and (iii.) erection of county offices authorised by the County Office Site (London) Act, 1906.

Power is sought to enable the Southwark Borough Council to make and maintain subways for foot passengers at the Elephant and Castle, and to execute all necessary works in connexion therewith.

Power is sought to enable the Royal Borough of Kensington Borough Council to make up, pave, maintain, light, and cleanse the place or lane extending from Cottage-place, Brompton-road, to the southern boundary wall of No. 28, Brompton-road, and to borrow money for the purpose.

The Council also seeks powers to (i.) enter into agreements for the acquisition of lands and property for the purpose of effecting a widening of Woburn-place and Upper Woburn-place, and of the road on the north-eastern side of Tavistock-square and Endsleigh-gardens respectively, and to construct and maintain subways in connexion with such widening; (ii.) appropriate land, acquired for educational purposes and abutting on Hortensia-road, for the purpose of widening King's-road, Chelsea; (iii.) charge and make by-laws for the use of a golf course at Hainault Forest; (iv.) acquire or accept by agreement land and buildings in Danvers-street and Cheyne-walk, Chelsea, and lease such lands for building; (v.) discharge storm water from sewers or pumping stations into Channelsea River and Abbey Creek, West Ham; (vi.) use for the purpose of testing electrical meters and the accommodation of its staff generally the electric generating-station on the Victoria-embankment; (vii.) enable metropolitan borough councils and the City Corporation and other authorities to provide public lavatories or sanitary conveniences on or in the vicinity of the boundaries of their districts

The Council, having transacted other business, adjourned at a late hour.

* The clauses are printed on pages 682, 683.

Legal Column.

WORKMEN'S COMPENSATION.

One or two further decisions of the Court of Appeal on the Workmen's Compensation Act may usefully be noted. The most important of these is the decision in the case of Mulrooney *v.* Todd and the Lord Mayor, etc., of Bradford. This is the first decision given by the Court on sect. 4 of the Act, which relates to the liability of contractors. The corresponding section in the Act of 1897 was the cause of endless litigation, and it has been entirely recast in the Act of 1906, but not very successfully, as the Court found its interpretation difficult. The facts of the case have already been reported in the *Builder* (current volume, p. 630). The Corporation, who were possessed of markets, acquired a site for extending the markets, on which was a ruined mill. They required this mill to be removed, and Todd undertook to do the work and to pay the Corporation as well 15*l.* for the bricks. In the course of the operation one of Todd's men was killed, and his widow claimed compensation both against the Corporation and against Todd. Whether these parties were both properly joined in the arbitration was expressly left undecided, the question raised being whether the Corporation were liable in respect of the death of Todd's workman by virtue of sect. 4. Under the old Act there was considerable doubt whether the section applied except where there was a contract and then a subcontract, this difficulty being raised by the marginal note "subcontracting." The Legislature should have been aware of this difficulty, yet these words still appear in the marginal note, and one of the points now decided is that, having regard to the provisions contained in the whole section, it must have been intended to apply to contracting and not only to subcontracting. It was contended also that this was really a contract for the sale of goods, but this contention was negatived. A Corporation, by sect. 13, is dealt with in special terms:—"The exercise and performance of the powers and duties of a local or other public authority shall, for the purposes of the Act, be treated as the trade or business of the authority," and the Court held these words to bring the Corporation within sect. 4, and declined to limit the application of sect. 13 to such duties which the Corporation could be enforced to perform by mandamus. The decision is therefore limited to corporations, but this latter point is of considerable importance since Corporations are nowadays anxious to act as traders, yet attempt to avail themselves of legislative protection which was only conferred upon them in respect of functions they are under a duty to perform.

The question of what is employment of a casual nature is going to cause uncertainty under the new Act, especially as the Court of Appeal has decided that this is a question of fact with which it will not interfere if there is any evidence to support the finding of the arbitrator, and it will be remembered that this attitude was the cause of the endless litigation about scaffolding under the old Act. Two decisions

difficult to reconcile one with the other have already been given. In Chamberlain *v.* Weston (reported the *Builder*, page 113) a man employed at so much an hour as "handy man" was injured whilst papering a ceiling, and was held by the arbitrator not to be casually employed; whilst in a later case, Brereton *v.* Stevens (the *Builder*, page 657), a man put on to a job of painting a house which was calculated to last a fortnight was held by the arbitrator to be casually employed, and in both cases the Court of Appeal refused to disturb the findings. The question only arises where the person is employed "otherwise than for the purposes of the employer's trade or business," and we referred to this subject in a Note, August 8, where the cases will be found discussed. No reasonable principle has been suggested so far as applying to the interpretation of the facts, and some assistance from the Court of Appeal would have been welcome. Some continuity, or expectation of continuity, of employment must be shown, but if a man employed on a job calculated to last a fortnight is excluded, except on the ground that he is not a "workman" at all but an independent contractor, it seems difficult to imagine what is meant by continuity.

The absurd effects of the modification of the section relating to "serious and wilful misconduct," which was inserted at the instigation of the Labour Party, are well illustrated in the case of Hapelman *v.* Poole. A man employed by a lion tamer to clean the cages and generally to make himself useful had been left in charge, his instructions being to see that the lions did not fight. By some means a lion got out into a dressing-room at the theatre where the lions were exhibited, and whilst getting it back into the cage the man was killed by the lion. The County Court judge was of opinion, from the facts, that the deceased must have interfered with the lions for some purposes of his own, and he refused to award compensation, but the Court of Appeal held that the question of wilful misconduct could not arise for decision, as under the new Act it was no longer a defence where death ensued or the injuries were serious and permanent. As it was the duty of the man to secure the lion, however it had escaped, he was held to be acting in the course of his employment, and his dependants entitled to compensation. The Legislature year by year places increased obligations on employers to secure the safety of their workmen, yet it has removed, by this extraordinary provision, an incentive to make the workmen careful of themselves and their fellow-workmen. In the *Builder*, July 4 last, we drew attention to a statement by the Home Secretary that accidents in factories had shown an increase after the introduction of each of the Workmen's Compensation Acts. The first Act did away with the common law principle of contributory negligence, and this new Act has gone further, and has proceeded on the absurd system of making the nature of the injury the test of liability. A builder may issue express instructions against certain practices, as, for instance, that the men shall not ride in buckets attached to a crane; he does this in the interests of the men themselves, yet if his instructions are disregarded and a man is injured the employer is liable, provided the man is only seriously enough injured. When a dereliction of duty may cause danger to others the case is even more serious. This legislation is an absurdity, and the result is insurance against all risks and a lessening of personal responsibility.

The Rivers Pollution Prevention Act.

The case of Butterworth & Roberts *v.* West Riding of Yorkshire River Board, in the House of Lords, decided a question of some importance. The appellants were manufacturers who had been proceeded against by the respondents, who were the authority for enforcing the provisions of the Rivers Pollution Prevention Act, 1876, for allowing polluting liquids to pass into a certain stream. The appellants had allowed their trade effluent to pass into a pipe which had been laid down many years previously, but which had become a sewer under the Public Health Act, 1875, and they contended that they had a prescriptive right to discharge it into this sewer, and that it was then the duty of the local authority so to dispose of it as not to infringe the law.

The Court interpreted the sections of the Act as applying not merely to a direct discharge but also to a discharge through an intermediate conduit, but held that even where there was a right to discharge such effluent before the Act it was only retained on condition that the manufacturer should use the best possible means of rendering it innocuous, a condition not fufilled in the present case. It was argued that if the Act applied to discharge through a sewer, and not only to direct discharge, then, under sect. 3, a householder who discharged sewage into a sewer might be held liable, if the local authority allowed the matter, finding its way down that sewer, to pass into a stream, but it was pointed out that such a case was provided for in the last paragraph of the section. That paragraph requires the sanction of the local authority to be obtained, to attain exemption from committing an offence which raises a point worthy of consideration in these days of uncertainty as to the respective liabilities of private individuals and the local authorities as to drains and sewers.

Subsidence of Land.

Questions of law in connexion with subsidence of land caused by mining operations have recently been much before the Courts. The latest decision of the House of Lords in Dyson *v.* Forster raised an important question for owners of property in mining districts. In 1871 certain land was sold, but the conveyance reserved all minerals with a power to work the same from below. In 1887 the minerals under this land were leased by the vendor to another person, Crawford, and this lease contained a covenant to pay compensation for damage done by working the mines, and this covenant purported to be made not only with the lessors, who were also the vendors of the surface, but also with the owners or occupiers for the time being of the surface or of any building thereon. The present actions were brought for compensation through subsidence by the successors in title of the purchaser of the freehold in the surface against the representatives or assignees of Crawford, the contention of the defendants being that the plaintiffs, being no parties to the indenture which contained the covenant, were not entitled to its benefits. The House of Lords agreed with the Court of Appeal that as the covenant ran with the land, under the Law of Real Property Act, 1845, there was no doubt that the assigns of the purchaser of the surface could have the benefit of it. They held it not to be merely a collateral covenant, as it affected the nature and value of the surface land, as it would render it more available to let for building or agricultural purposes. This case, it is to be observed, did not involve questions such as have recently been before the Courts as to right of letting town surface when the operations can be carried on in no other way than by causing subsidence—see, for instance, Butterby Company *v.* New Hacknall Colliery Company (noted in the *Builder*, December 5). As regards these cases of subsidence there is some difficulty in reconciling the decisions with that in the House of Lords in a case, Butterknowle Colliery Company *v.* Bishop Auckland Industrial Flour and Provision Society (the *Builder*, May 26, 1906), and a decision of the highest tribunal on the question of the rights of parties where the necessary consequence of any working, however carried on, must result in subsidence contemplated by the parties, will be awaited with interest.

Architectural Societies.

The Leeds and Yorkshire Architectural Society.

On Thursday, the 10th inst., Mr. S. D. Adshead read a paper on "Style in Architecture," Mr. P. Robinson, President, in the chair. The lecturer said the word "style" in architecture was generally understood to imply a particular type of character which by repeated usage had developed into set form. Character was closely allied to style, but denoted something more personal and fleeting. Style was an advanced state of character; it was character systemised by consistent and persistent effort; in fact it was crystalised character. Every style of architecture when analytically examined was found either to have developed out of other styles by the adaptation and infusion of certain of their characteristics, or it was found to be a direct transcription of some one other style. In the former case it tended to be original, and in the latter case it was affected. English architecture must depend for its success in the future upon a more scientific application of knowledge. What we must seek to cultivate was a universal original style, and it was towards the establishment of this that our first interest should be directed. It would be a style founded on system, scholarly intuition and classic inspiration, and would be easily recognised as *a priori* the style of the nation. At the present day in England we had co-existing many original styles in architecture. He described them as styles, but it was doubtful if they were sufficiently systemised to be regarded as anything more than phases of character. In his enumeration of the styles of England existing at the present day the lecturer wished it to be understood that his remarks referred in particular to style as seen in works of a monumental order, and did not refer quite so strictly to our domestic work of the simpler class. When evolving serious design we should draw our inspirations from a pure classical source and from that source alone. Working thus we were working in the Grand Manner. In England we had what was popularly known as XXth century Renaissance or Free Classic. When analysed this so-called style was really found to consist of nothing more substantial than a confusion of forms. Another conspicuous style was XXth century Gothic. The Gothic churches of Sir Chas. Nicholson, Messrs. Bodley, Stokes, Tapper, and Scott were on the whole amongst the most satisfactory pieces of modern architecture which we possess. Then there was that very conspicuous style which, if not exactly the same, very closely approximates to *l'art nouveau*, or to be exact, it was *l'art nouveau* of Otto Wagner, of Vienna. It was to be regretted that this caprice should have captivated the attention of more than one distinguished architect. If modern architecture was to develop a style it must be the outcome of a sound æsthetic sense, wide research, and scholarly attainment. It must be scientific, and the work of the philosopher as well as the artist.

A Competition for the Planning of Greater Berlin.—The Society of Berlin Architects is responsible for promoting the idea of opening a competition in order to secure for the growing town a scheme which shall answer the requirements of traffic as well as those of beauty, hygiene, and economy. The question was first broached by the Society in the autumn of 1906, and a public competition has recently been opened. The five premiums offered are of the following values:—30,000 marks, 20,000 marks, 15,000 marks, and two of 10,000 marks. A further sum of 30,000 marks is available for purchasing any artistic or technical detail of peculiar merit. The task which this competition sets is one of extraordinary importance, and, whatever be the results, it deserves every success. It will doubtless secure a large quantity of valuable and beneficial suggestions and proposals which will amply justify the money expended on it.

THE BUILDER

DECEMBER 19, 1908.

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MEETINGS.

FRIDAY, DECEMBER 18.

Institution of Mechanical Engineers.—Mr. L. A. Legros on "Typecasting and Composing Machinery." 8 p.m.

Birmingham Architectural Association.—Sir C. A. Nicholson, Bart., on "Churches of Northern France."

Institution of Civil Engineers (Students' Meeting).—Mr. R. Wolfenden on "High-power Water-turbines on Moderate Falls." 8 p.m.

MONDAY, DECEMBER 21.

Liverpool Architectural Society (Incorporated).—Mr. H. Lionel Thornely, F.R.I.B.A., on "Registration." 6 p.m.

University of London (South Kensington, S.W.).—Mr. Banister Fletcher on "The Later Renaissance Palaces and Churches of France." 8 p.m.

TUESDAY, DECEMBER 22.

Institution of Civil Engineers.—Mr. Frank Huntingdon Corson on "An Investigation of the Heat-Losses in an Electric Power-Station." 8 p.m.

Illustrations.

GOVERNMENT OFFICES, SIMLA.

THIS design, published with the consent of the Government of India, is by Mr. James Ransome, late Consulting Architect to that Government.

In view of the severe earthquake of 1905 it was considered advisable to construct the building of steel and concrete, and its architectural treatment is the result of a desire to express frankly the nature of its construction. Stone masonry has been employed below the level of the first floor, above which the walls are plastered externally with rough-cast relieved by a deep band of ornament in sgraffito, immediately below the broad eaves of the roofs. These, together with the shaft of the central tower, are covered with rough grey slates. The tower has been designed to suit the requirements of the Meteorological Department, which entail the employment of a flat roof.

The ground floor is chiefly for the accommodation of records and the external staircases are for direct access to the principal offices on the first floor. The plan of the building is in the form of an E with a central corridor along its entire length and wings, out of which open the various offices, some forty rooms on each floor. The architect, who now resides in London, had not the means in his possession of furnishing a plan of the building for publication along with the view.

The drawing was exhibited at the last Royal Academy.

ST. ANDREW AND ST. PATRICK'S CHURCH, ELVEDEN.

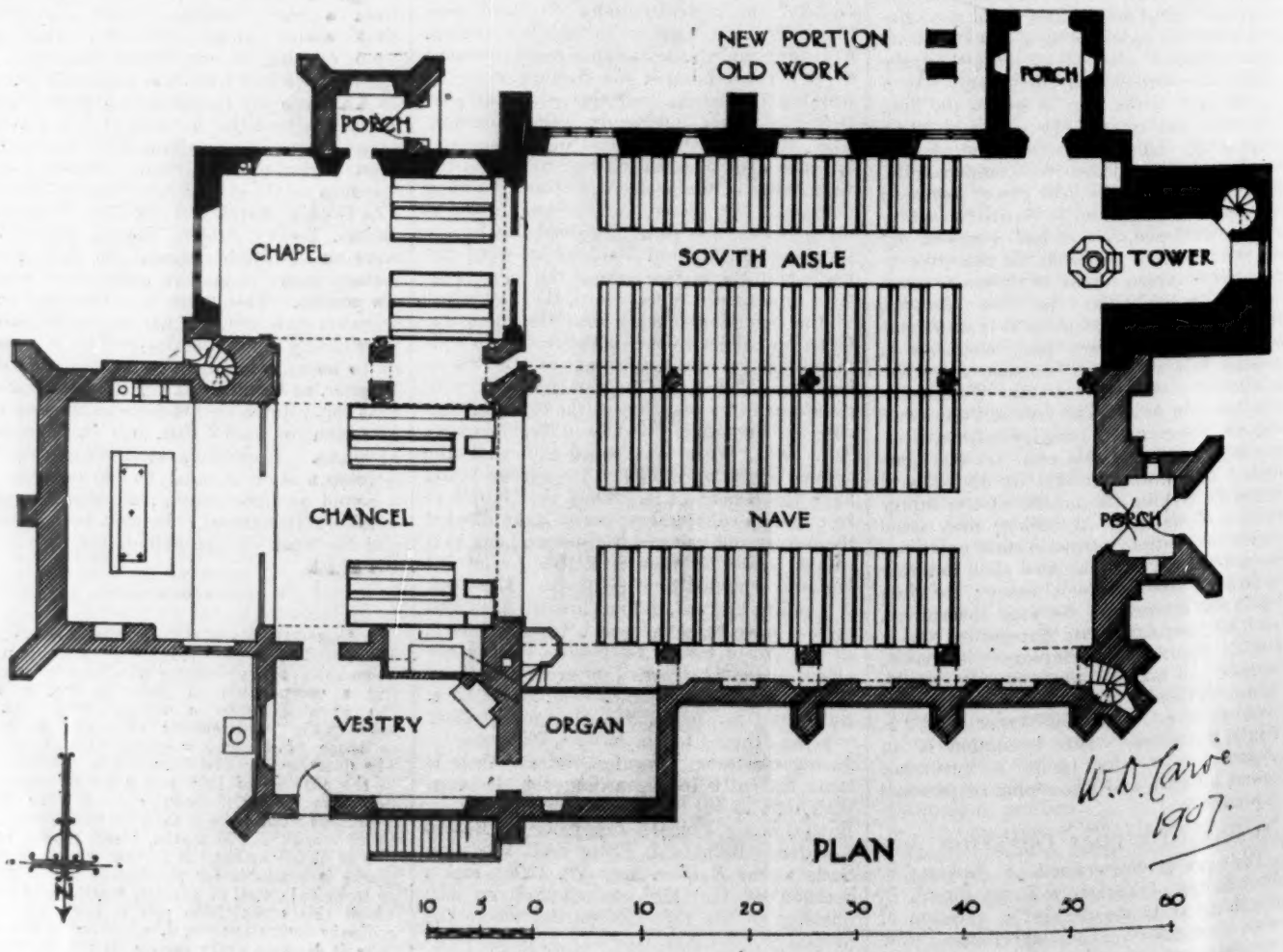
THE view and plan represent the alteration of an existing church by a considerable enlargement, the old tower and south aisle being retained, as shown by the distinctive shading on the plan.

Mr. W. D. Caröe is the architect for the new portion.

ST. HELEN'S HIGH SCHOOL FOR GIRLS, ABINGDON.

THE school is planned on the central-hall system, with classrooms arranged on three sides. The hall is 50 ft. long by 27 ft. wide and 25 ft. high inside, and there are five classrooms opening from it on the ground-floor; three of these are separated from the hall by movable partitions. There are also five classrooms on the first-floor, opening on to a gallery which extends round two sides of the hall. The special art-rooms are also approached from this gallery.

These rooms, with the cloakrooms, lavatories, entrances, principal's room, waiting-room, piano-rooms, and two dormitories on the second-floor, form the main school block. On either side of this block are the two main staircases, which are carried up as towers. Beyond the staircase on one side is a block containing, on the ground-floor, two special



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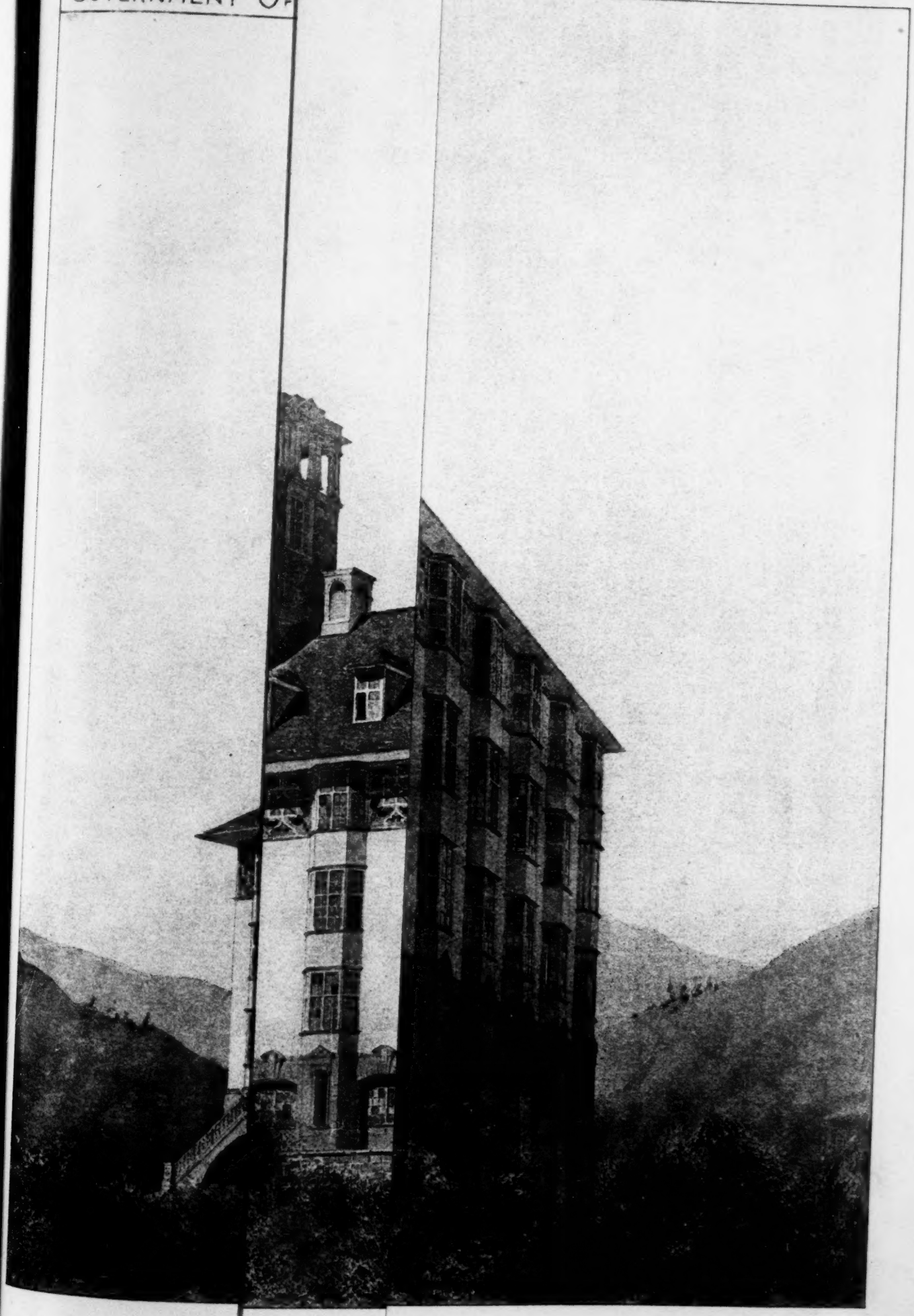

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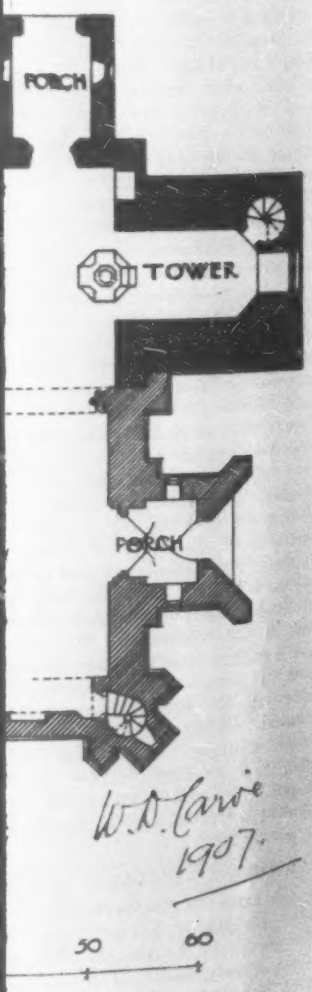

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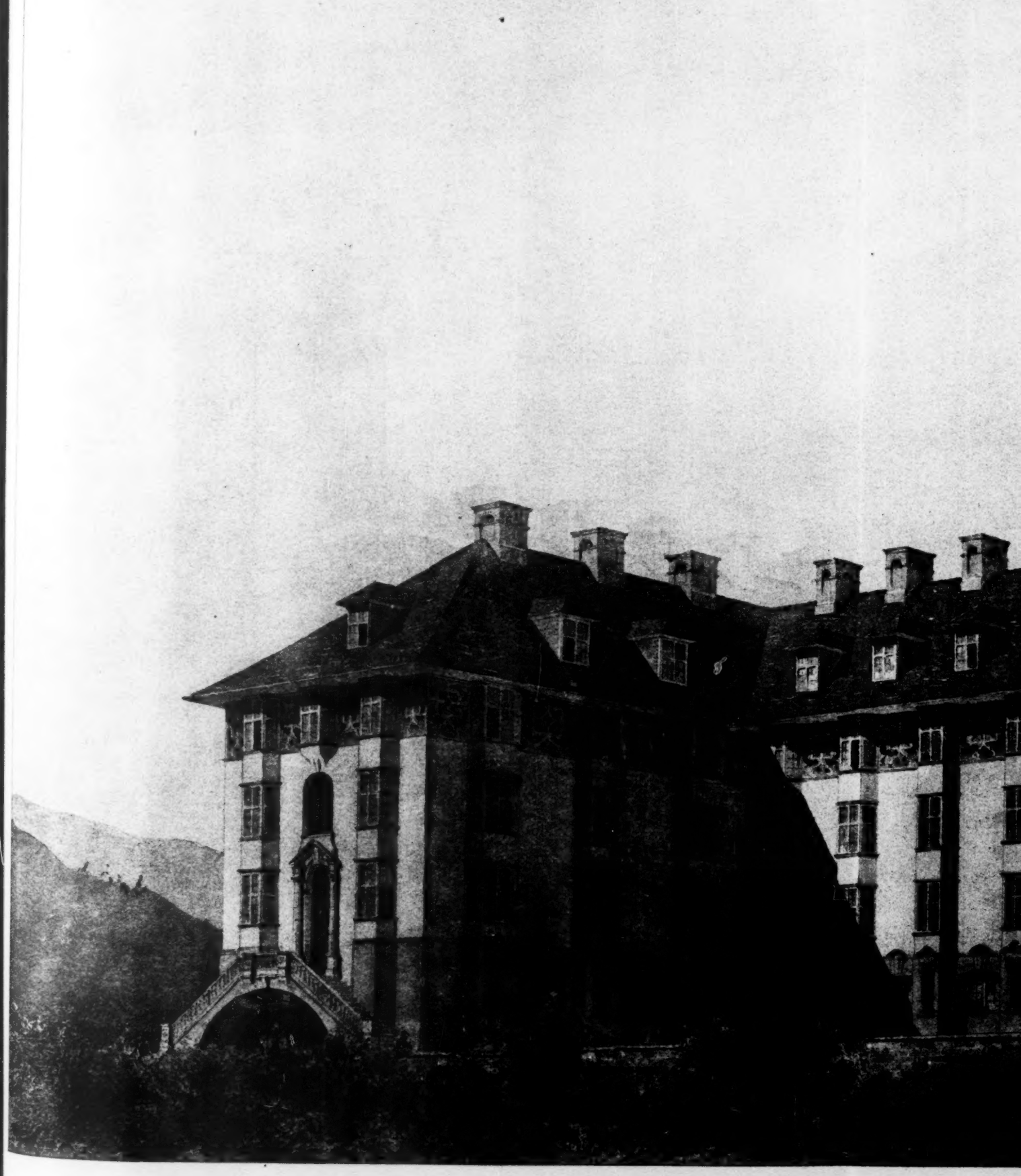

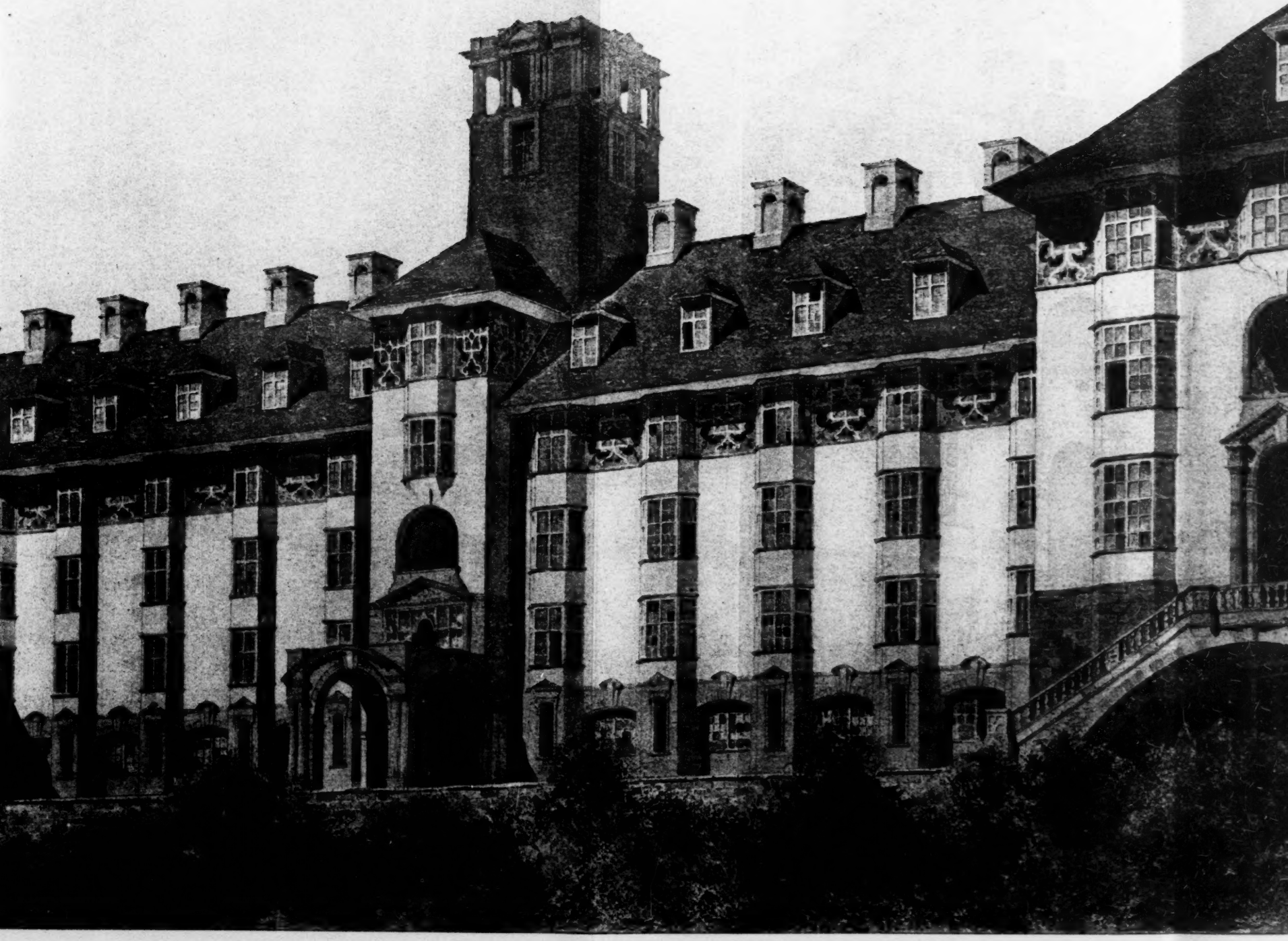

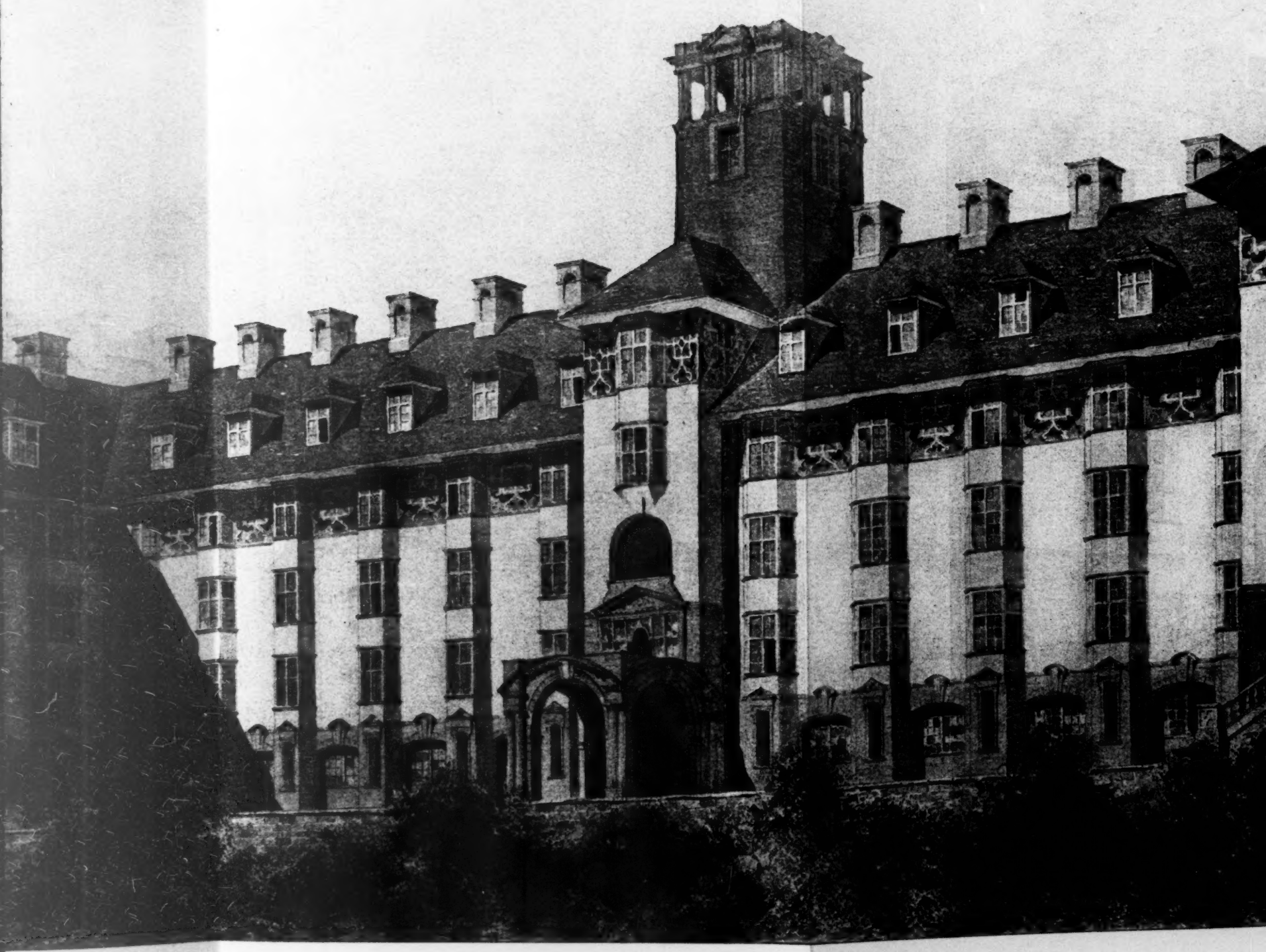

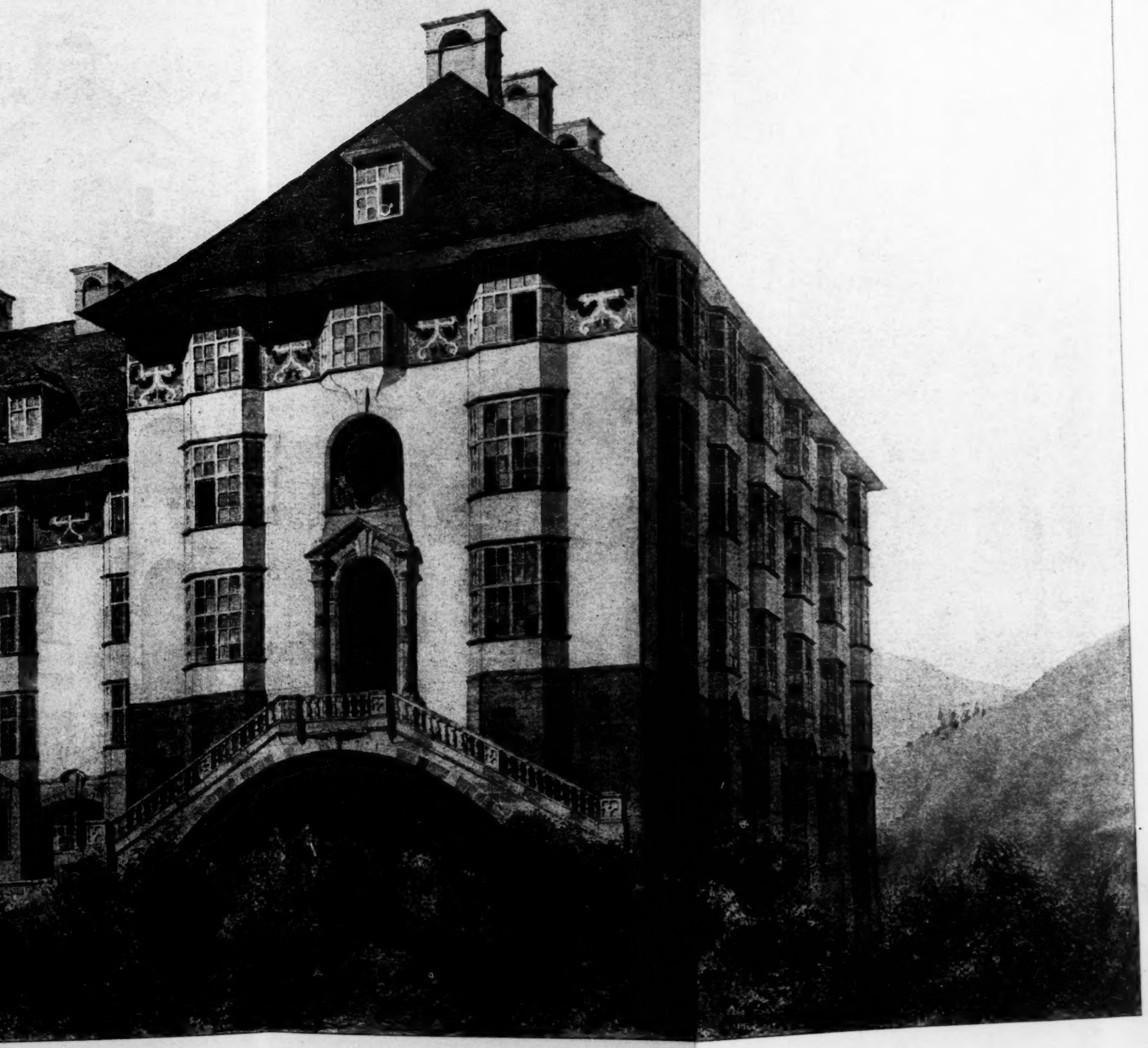

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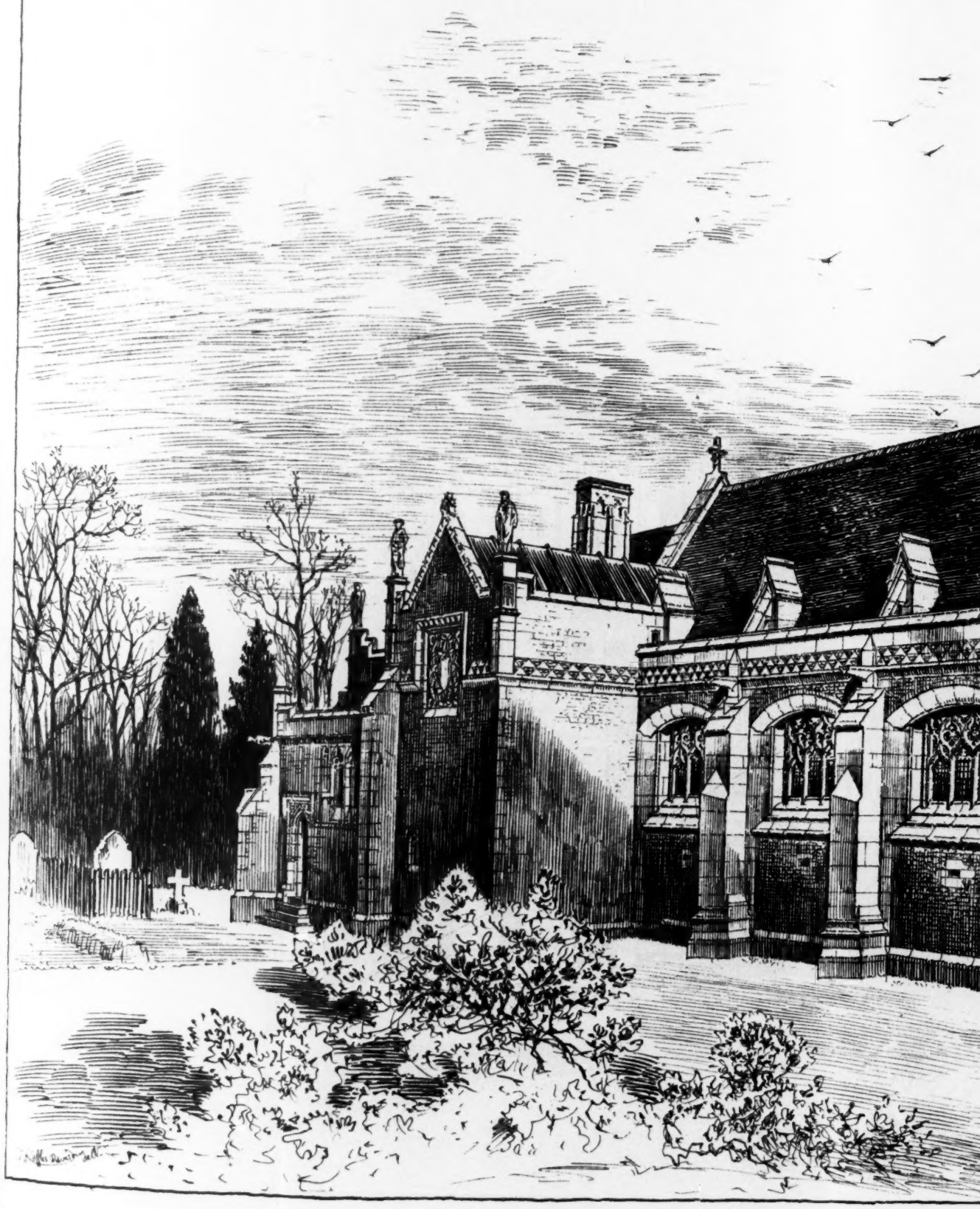

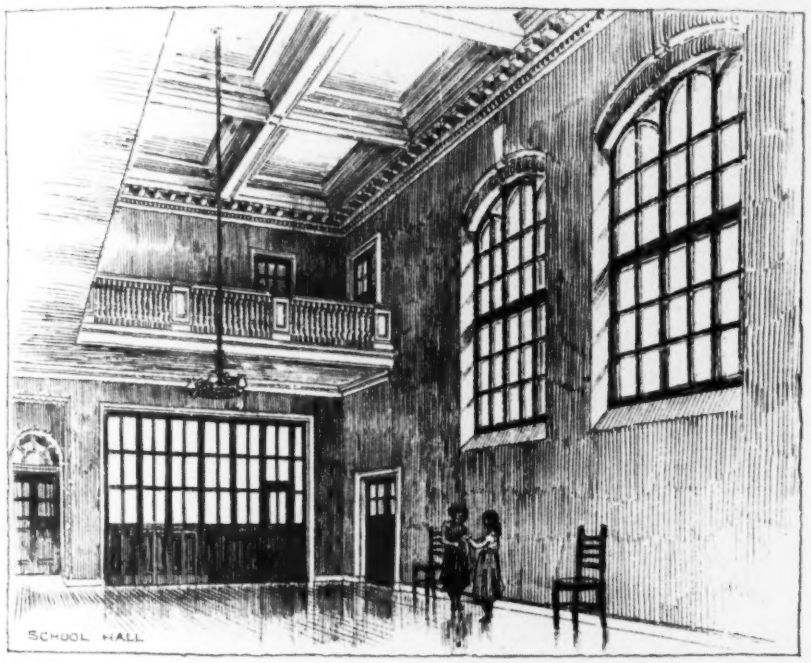

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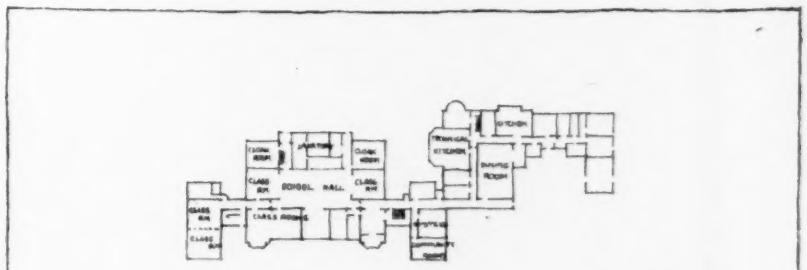

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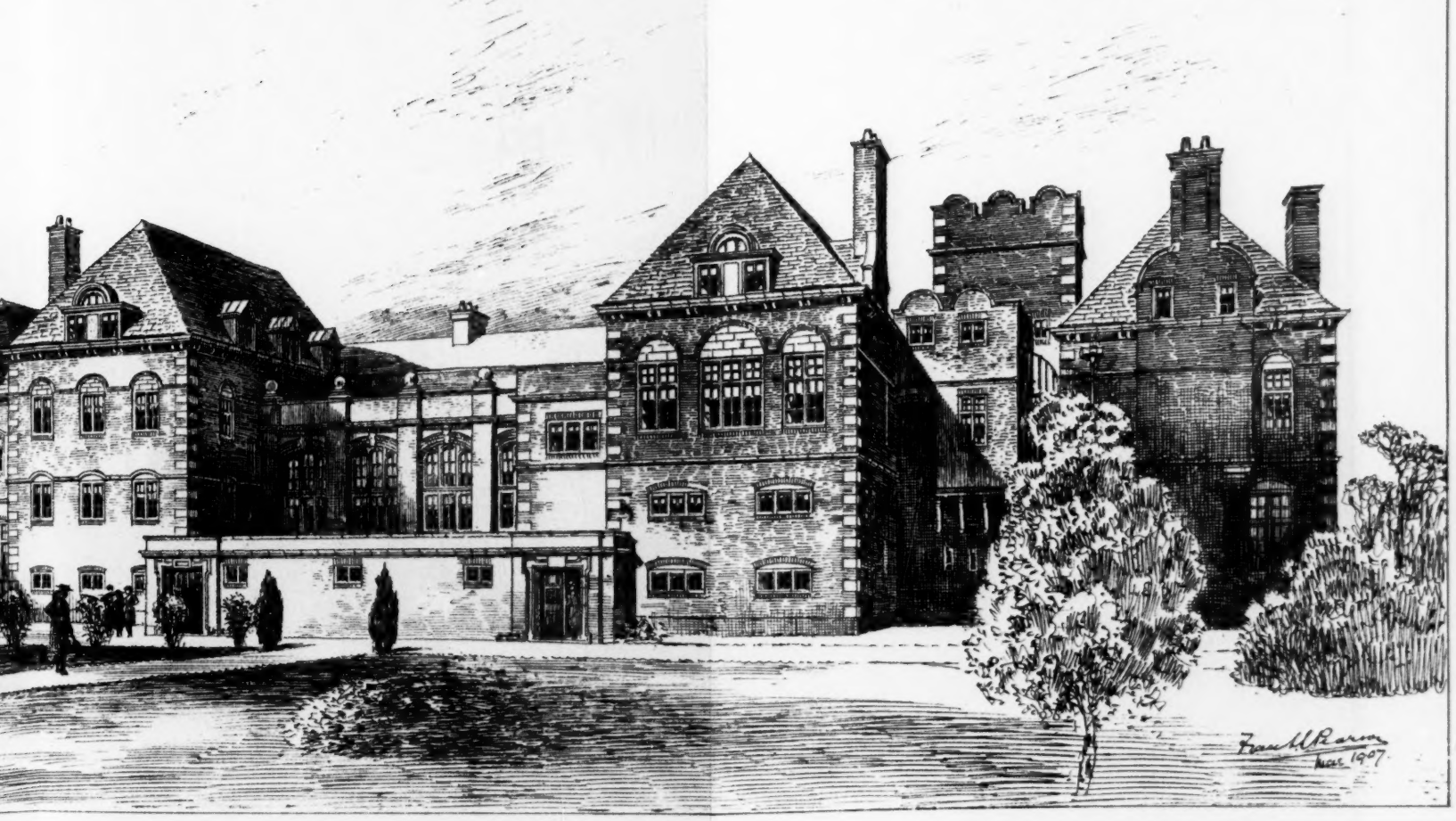
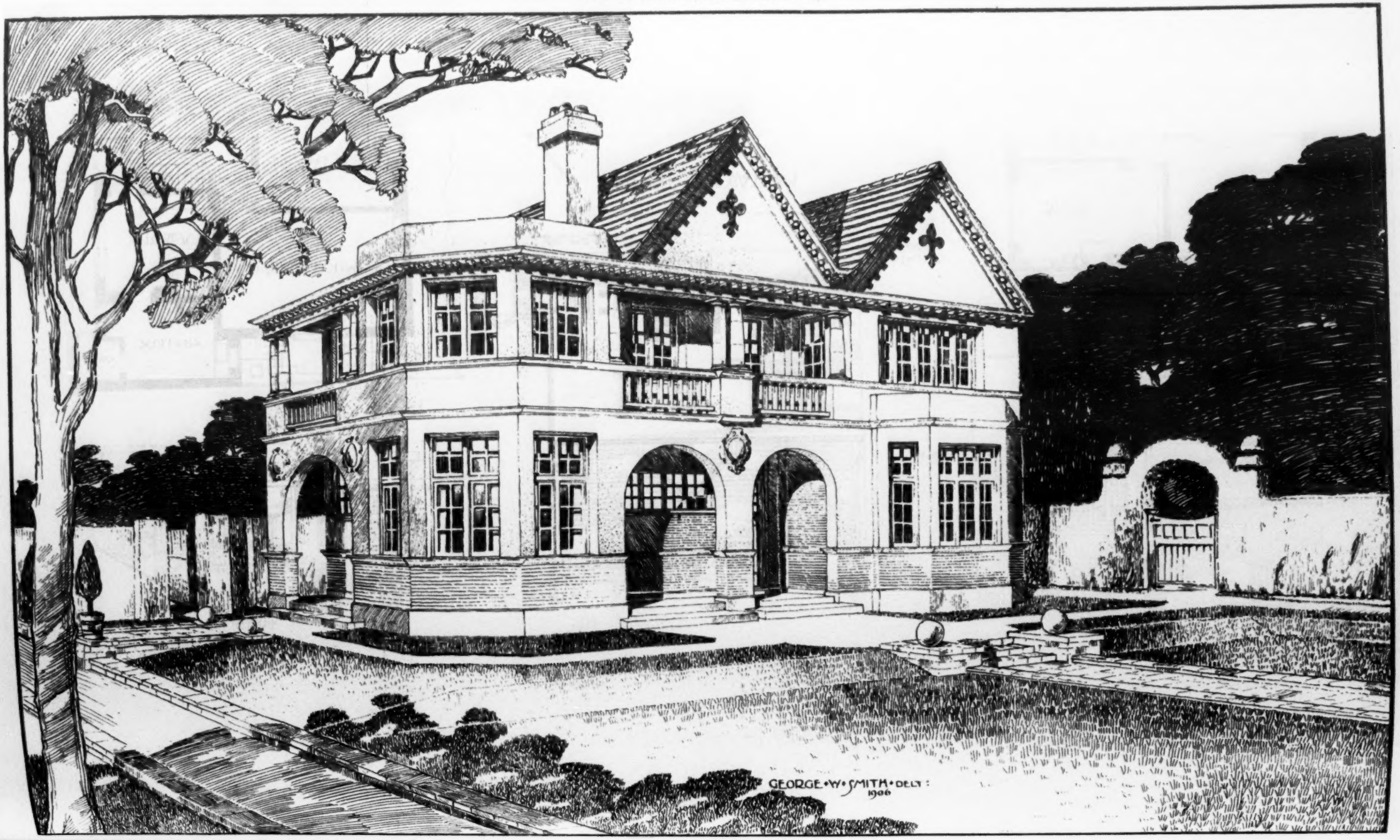
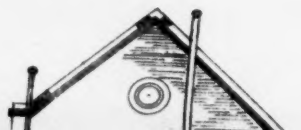


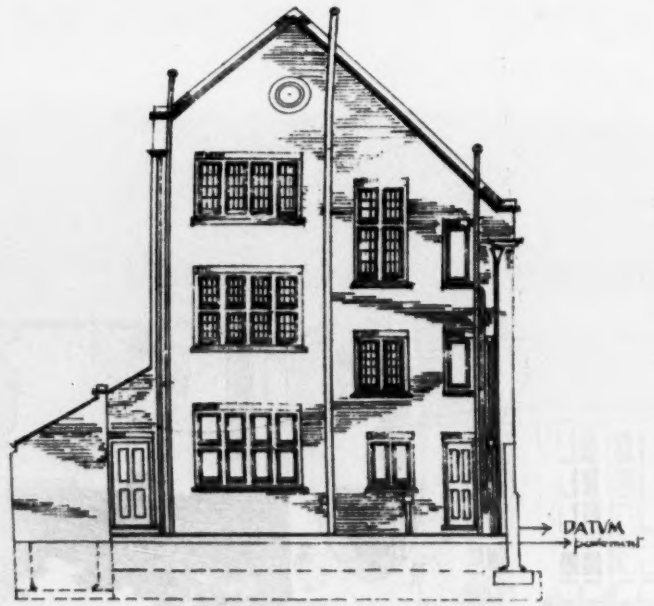




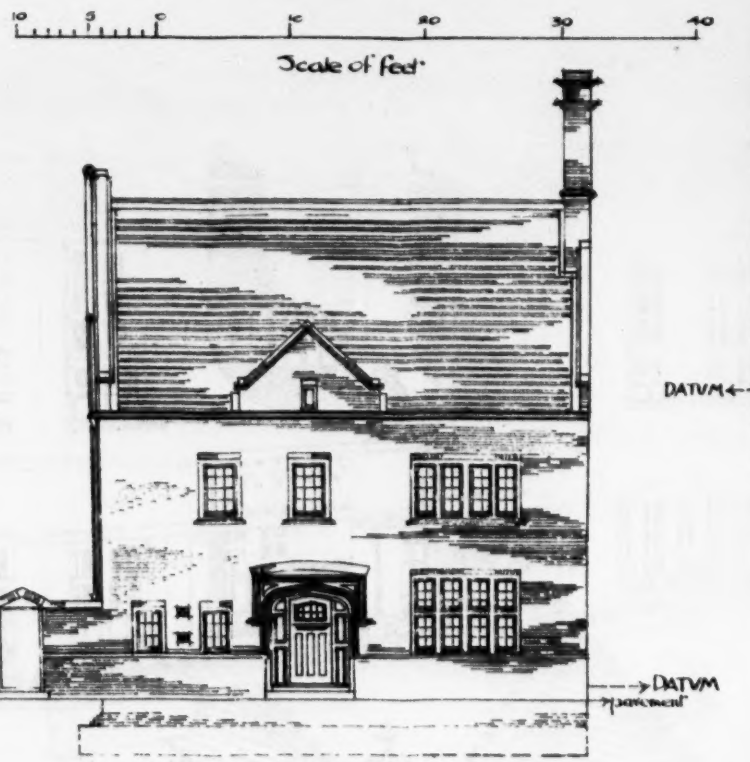
ST STEPHENS · VICARAGE
SOUTHWARK · LONDON ·

ST STEPHENS · VICARAGE
SOUTHWARK · LONDON ·

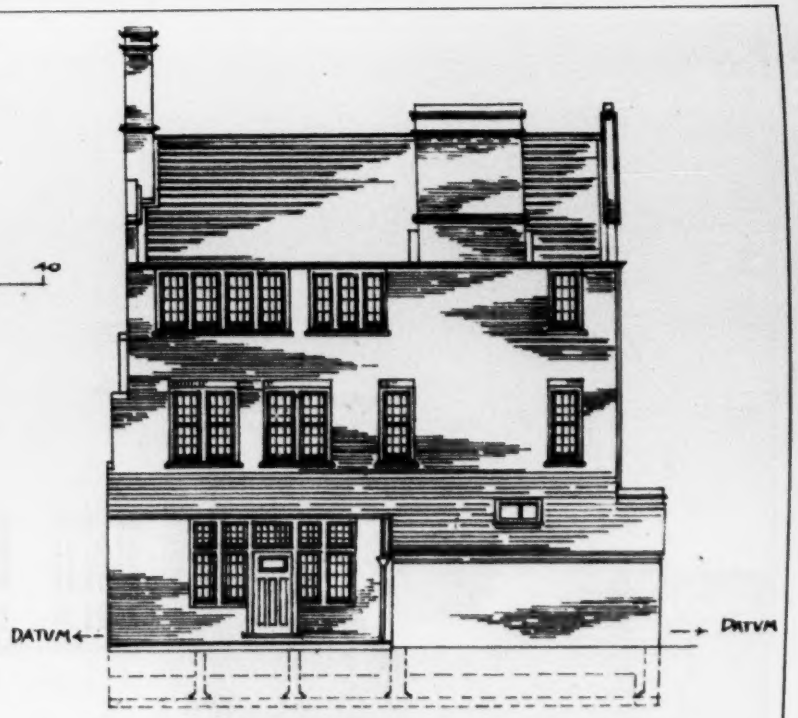
MR JOHN · W · RHODES · ARCHITECT



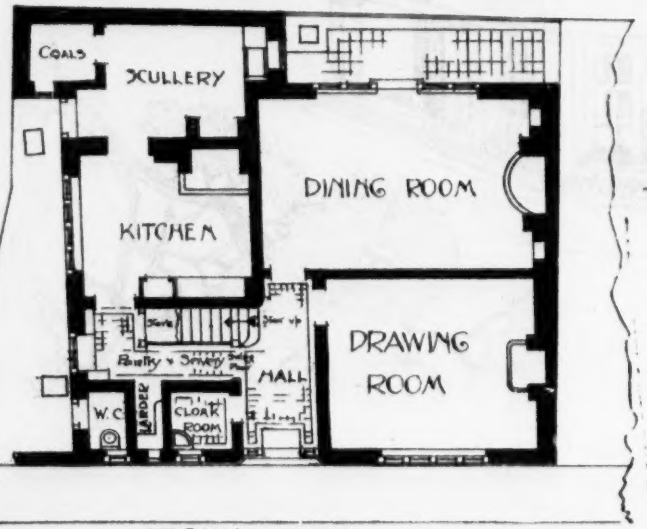
N·E· ELEVATION



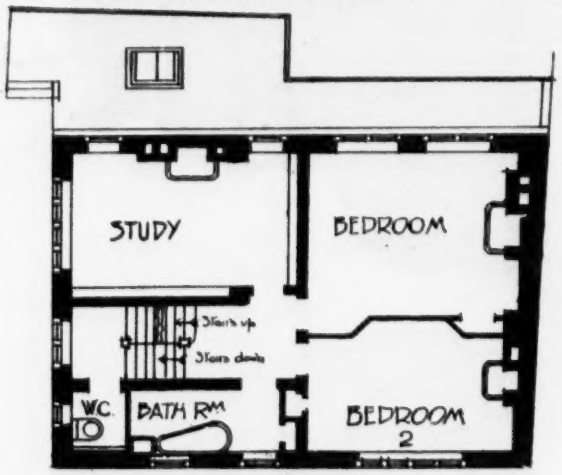
FRONT ELEVATION



BACK ELEVATION



GROUND PLAN



FIRST FLOOR PLAN

classrooms and master's room; on the first-floor, sitting-rooms for boarders and teachers; and on the second-floor a third dormitory. Beyond the staircase on the other side is a block containing the rooms for the resident sisters, and on the top-floor an isolated sickroom; and beyond again is the kitchen wing, which, in addition to the usual offices and servants' rooms, includes a large dining-hall for the use of the scholars and a technical kitchen.

The elevations are kept very simple, and depend for effect on the grouping of the blocks rather than on elaboration of ornament.

Mr. F. L. Pearson is the architect.

HOUSE AT GUILDFORD.

THIS is a small house with a rather unusual plan, which is contrived so as to give opportunity for some effective arrangement of the exterior. Mr. W. I. Chambers is the architect.

ST. STEPHEN'S VICARAGE, SOUTHWARK, S.E.

THIS long-needed vicarage has recently been erected in St. Stephen's-square. The site given by benefactors many years since is small, almost too small for the purpose. The soil is made ground overlaying river silt of considerable depth; the surface of site was about 3 ft. above levels to north and south-east, necessitating extensive digging. There are no rights of light except towards the street. A London County Council boundary sewer, alive for half its length, ran parallel to the north-east boundary wall the whole depth of site.

The sewer was reconstructed and the house erected on a cement concrete raft 4 ft. thick. The brickwork is in London stocks faced with red sand-faced bricks of varying tints. Moulded bricks and Forest of Dean stone are sparingly used in the dressings, and all copings and steps are of the latter material. The casements are of wood with steel-cored lead-lights. The internal doors are fitted with special locking thumb-latches to the architect's design, and all the casements have special wrought-iron fittings. The restricted area of the site compelled the study to be on the first floor. The dining-room is large, to accommodate meetings of parish workers, and the scullery is fitted for instruction of small cookery classes. The principal living and sleeping rooms have sunny aspects.

The total finished cost was 1,830*l.*

The builders were Messrs. Spiers & Son, and the architect Mr. John W. Rhodes.

APPLICATIONS UNDER THE LONDON BUILDING ACTS, 1894 TO 1908.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Acts, 1894 to 1908. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

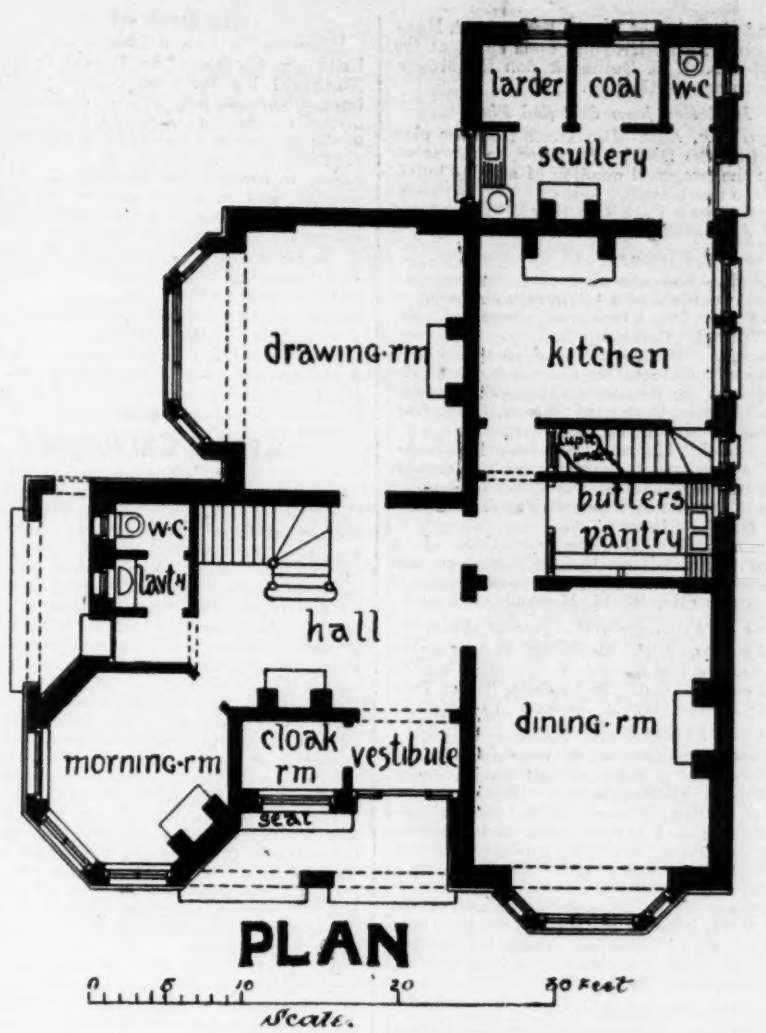
Battersea.—Additions to the Battersea Polytechnic, Battersea Park-road, Battersea, to abut upon Forfar-road and Lurline-gardens (Messrs. Mountford & Clapham for the Board of Governors of the Polytechnic).—Consent.

Hampstead.†—A deviation from the plan approved for the re-erection of the Old Black Lion beer-house, No. 295, West End-lane, Hampstead, so far as relates to the retention of a signpost on the land to be dedicated to and left open for the use of the public (Mr. E. Faux for Courage & Co., Ltd.).—Consent.

Hammersmith.—In connexion with the consent given to the erection of nine houses with shops on the western side of Askew-road, Hammersmith, permission to be given to the erection of a stable and workshop at the southern end of the passageway at the rear of such shops (Mr. S. H. Hannington).—Consent.

Hampstead.—Two illuminated signs at the Chalk Farm Tube Railway station, Adelaide-road and Haverstock-hill, Hampstead (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Holborn.—A projecting illuminated sign at Messrs. Lipton's tea-rooms at the Holborn Tube Railway station, Kingsway, and High Holborn, Holborn (Lipton, Ltd.).—Consent.



House at Guildford.

Holborn.—An illuminated sign at the Holborn Tube Railway station at the corner of Kingsway and High Holborn (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Holborn.—An illuminated sign at the entrance to the Holborn Restaurant, on the eastern side of Newton-street, Holborn (Messrs. Collcutt & Hamp).—Consent.

Islington.—An illuminated sign at the Holloway-road Tube Railway station, Holloway-road, Islington (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Islington, North.—An illuminated sign at the Highgate Tube Railway station, Junction-road, Islington (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Islington, North.—An illuminated sign at the Tufnell Park Tube Railway station, Tufnell Park-road, Islington (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Islington, East.—An illuminated sign at the Gillespie-road Tube Railway station, Gillespie-road, Islington (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Islington, West.—An illuminated sign at the Caledonian-road Tube Railway station, Caledonian-road, Islington (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Kensington, South.—Retention of a wood and glass sign at the Queen's-gate Motor Works, Jay-mews, Kensington (Messrs. Pawson & Collins).—Consent.

Lambeth, North.—An illuminated sign at the Westminster Bridge-road Tube Railway station, Westminster Bridge-road, Lambeth (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Lewisham.—Retention of a greenhouse at the rear of No. 109, Grierson-road, Lewisham, abutting upon Riseldine-street (Mr. G. Hayward).—Consent.

Marylebone, East.—An illuminated sign in the vallance of the iron and glass shelter at Restaurant Frascati, Oxford-street, St. Marylebone (Franco-British Electrical Company).—Consent.

Marylebone, West.—An illuminated sign at the Edgware-road Tube Railway station, Edgware-road, St. Marylebone (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Whitechapel.—An illuminated sign at the St. Mary's, Whitechapel, station of the Metropolitan District Railway Company, Whitechapel-road, Whitechapel (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Woolwich.—Fifteen houses on the northern side of North Park-road, Eltham, between the house known as "Holmwood" and No. 12, North Park-road (Messrs. Whistler & Worge).—Consent.

Holborn.—A one-story projecting porch on the Great Russell-street frontage of a building to be erected upon a site abutting upon Tottenham Court-road, Bedford-avenue, Caroline-street, and Great Russell-street, Holborn (Mr. R. Plumbe for the Chairman and Committee of the Central Young Men's Christian Association).—Refused.

Width of Way.

Woolwich.†—A building to be used as a "tinning shop" on the eastern side of Henley-road, Woolwich, at less than the prescribed distance from the centre of the roadway of the street (W. T. Henley's Telegraph Works Company, Ltd.).—Consent.

Width of Way and Temporary Buildings.

Southwark, West.—Retention for a further period of the temporary iron shed upon a site abutting upon the northern side of Lavington-street and the southern side of Farnham-place, Southwark (Measures Brothers, Ltd.).—Consent.

Width of Way and Line of Frontage.

Bow and Bromley.—Retention of a wooden porch in front of No. 2, Coborn-road, Bow (Mr. J. Glanville).—Consent.

Width of Way, Line of Frontage, and Construction.

Strand.—The erection of a gangway across Kingly-street to connect Nos. 38 and 43, Kingly-street, Westminster (Messrs. W. Woodward & Sons for Liberty & Co., Ltd.).—Refused.

Spaces at Rear.

Hammersmith.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the

proposed retention of No. 63, King-street, Hammersmith, with an irregular open space at the rear (Messrs. J. S. Quilter & Son for Messrs. Sway Brothers).—Consent.

Deviation from Certified Plan.

Marylebone, East.—Deviations from the plan certified by the District Surveyor, so far as relates to the proposed erection of a lodge building on the north-eastern side of Lower William-street, Regent's Park (Mr. F. M. Elgood for Mr. J. A. Michell).—Consent.

Lines of Frontage and Construction.

Deptford.—The retention of a wooden stall and a canvas blind of a temporary character in front of No. 140, Creek-road, Deptford (Mr. A. G. Willey).—Consent.

Greenwich.—The retention of an addition of a temporary character to a coach-house at the rear of No. 56, Shooter's Hill-road, abutting upon Kidbrooke Park-road (Messrs. Dyer, Son, & Hilton for Miss L. Eggar).—Consent.

Hampstead.—The retention of an office building of a temporary character on the eastern side of Rosecroft-avenue, Hampstead, abutting also upon the southern side of Platt's-lane (Mr. W. J. King).—Consent.

Lambeth, North.†—The retention of a wooden coffee stall on the north-western side of York-road, Lambeth, north-eastward of Sutton-street (Mr. W. H. Hopton).—Consent.

Line of Frontage and Space at Rear.

St. Pancras, East.—Buildings at the corner of High-street and Kentish Town-road, Camden Town, southward of the Camden Town Tube Railway station (Mr. D. Joseph).—Consent.

Formation of Streets.

Holborn.—Extension of the time within which the roadway of a street to lead from Torrington-place to Montague-place, Holborn, upon the site of Keppel-mews North, was to have been defined and thrown open to the public, and in connexion therewith a portion of Torrington-place widened (Mr. L. Walford).—Consent.

Lewisham.—That an order be issued to Mr. J. W. Webb refusing to sanction the formation or laying out of three new streets for carriage traffic out of the south-eastern side of Bexhill-road, Lewisham.—Refused.

Widening of Street.

Rotherhithe.—Widening of New-lane, Rotherhithe, at its end next to Gainsford-street (Messrs. S. Walker & Son for Sir W. N. Abdy, Bart.).—Consent.

Alteration of Buildings.

Paddington, South.—The uniting of No. 5, Torrington-mews and No. 113, Edgware-road, Paddington (Mr. G. H. Brown).—Consent.

Peckham.—An additional story to block "C" at the premises of G. G. Bussey & Co., Ltd., Rye-lane, Peckham (G. G. Bussey & Co., Ltd.).—Consent.

St. George, Hanover-square.—The uniting of Nos. 17 to 21, Dering-street, St. George, Hanover-square, with Nos. 315 to 317, Oxford-street, by an opening on the first floor and an opening on the second floor (Messrs. Withers & Meredith).—Consent.

St. George, Hanover-square.—The retention of a portion of an iron and glass enclosure and roof to an area at the rear of Nos. 25 and 26, Berkeley-square, St. George, Hanover-square (Mr. F. T. Verity for Mr. C. G. Patrick).—Consent.

Uniting of Buildings.

City of London.—The uniting of Nos. 3 and 4, Paternoster-buildings, City, at the first floor level, by an opening fitted with an armoured self-closing door (Mr. F. J. Fisher for Wells, Gardner, Barton, & Co., Ltd.).—Consent.

Kensington, South.—The uniting of Nos. 24 and 25, Emperor's-gate, and Nos. 6 and 7, MacLeod-mews, Kensington (Mr. H. Row).—Consent.

The recommendations marked † are contrary to the views of the local authorities concerned.

Competition News.

DESIGN FOR A CLUB IN FERRO-CONCRETE.

In this competition, instituted by the proprietors of the *Builder*, the assessors, Mr. Reginald Blomfield, A.R.A., Mr. Walter Cave, and Mr. H. H. Statham, have awarded the first premium (20 guineas) to design No. 29, and the second (10 guineas) to design No. 13. The author of No. 29 is Mr. F. J. Lucas, Ingram House, Stockwell-road, S.W.; and the author of No. 13 is Mr. J. W. Hepburn, A.R.I.B.A., 55, Southampton-row, W.C. The drawings are on view each day till Saturday next, from 10 a.m. to 5 p.m., in the first floor gallery of the rooms of the Architectural Association, 18, Tufton-street, Dean's-yard (by the kind permission of the Council of the Association).

PUBLIC BATHS, STIRCHLEY.

In connexion with a scheme for new public baths at Stirchley, the King's Norton and Northfield District Council have organised a limited competition, twelve architects being invited to compete, eleven of whom responded to the invitation. The Council appointed Mr. J. Lane Fox, architect, of 4, Oxford-place, Leeds, to conduct the competition and act as assessor, and he placed scheme No. 3 first in order of merit, which, upon opening the sealed envelopes, was found to be submitted by Mr. J. P. Osborne, of Colmore-row, Birmingham. The Council have unanimously adopted the award of the assessor.

SOUTH BANK-IN-NORMANBY TOWN HALL AND OFFICES COMPETITION.

Members of the Royal Institute of British Architects are advised not to take part in the above competition.

Trade Catalogues.

THE Saxon Portland Cement Company, of Cambridge, send us a tastefully-produced booklet entitled "Inside Facts about Saxon Portland Cement," the sales of which are said to exceed 100,000 tons yearly. The raw material used in the manufacture of this product is chiefly the deposit known as "chalk-marl," which contains all the chemical constituents necessary for the production of true Portland cement. But as the proportion of carbonate of lime varies from point to point in the quarries, the working faces are analysed daily, so as to afford reliable data for accurate adjustment of the substances in the slurry subsequently produced. After describing in detail the process of manufacture, the pamphlet gives the reports of tests conducted by Messrs. Stanger & Blount and Mr. J. West Knights, and concludes with a list of users, including Government Departments, municipal councils, and railway companies. This brand of cement is strongly recommended for reinforced concrete construction, two important features urged in its favour being uniform strength and absolute soundness.

Mr. H. C. Livingston, of Caterham Valley, sends us a circular setting out the advantages of "Livingston's cement bond" for uniting old and new concrete, bonding surface coats of rendering on concrete work, and analogous purposes. The material in question appears to be a liquid of secret composition, described in the circular as "annealed cement"—a term which we think might be improved, as the process of annealing could not have the effect of converting Portland cement into a liquid, or of altering its properties to any material extent. It is stated that the preparation was designed about three years ago at the request of the United States Corps of Engineers to overcome the difficulty of bonding concretes, and that having given complete satisfaction it has since come largely into use among architects and civil engineers in America.

The Phœnix Engineering Company, of Chard, send us a copy of their well-known and useful catalogue containing particulars of boilers and apparatus for dealing with tar, pitch, and asphalt for road-making and other purposes, machines and vans for sweeping, scraping, rolling, and watering roads, apparatus for testing and clearing drains, pumps of different kinds, and contractors' plant generally.

BOOKS RECEIVED.

FONTS AND FONT COVERS. By Francis Bond. (Henry Frowde. 12s.)

LONDON TOPOGRAPHICAL RECORD. Vol. V. (The London Topographical Society.)

THE FIRST INTERNATIONAL ROAD CONGRESS. By Montagu Harris and H. T. Wakelam, M.Inst.C.E. (Wyman & Sons. 3s. 6d.)

Correspondence.

ALL SAINTS' CHURCH, MARGARET-STREET:

THE DYCE MURAL PAINTINGS.

SIR,—May I have a short space in your columns for bringing to the notice of the artistic world, and indirectly to that of the public in general, the impending act of vandalism, as I consider it, arranged to be perpetrated in All Saints' Church? This church is so well known as one of the most beautiful in London that it is not necessary for me to describe it. One of the chief features of its beauty, as also one of its valuable and interesting ornaments, is the east wall of the church, which is covered by fifteen mural paintings by the late Wm. Dyce, R.A. They are mostly called "frescoes," but most of them are not true frescoes, but mural paintings. For many years they have been decaying, patches of the original paint scaling off and the general tone of colour modified. They were long ago inspected, and so far repaired, by Mr. Armitage, R.A., but unsuccessfully, as we know that artists of eminence are not always experts in picture restoration. Some time ago, in the lifetime of Prebendary Whitworth, a proposal for the taking up of the subject anew came before the Church Council, and I was requested, being at that time one of the churchwardens, to obtain the advice of an art expert and to get his report. This was done, and, to strengthen his views, he also got one of the best-known picture restorers in London to inspect the paintings. The cost, however, was, at that juncture, more than the Church Council saw their way to undertake, and the whole was held in abeyance. In the beginning of the summer of this year, as the jubilee of the church would take place next year (1909), it was deemed by the Church Council a fitting opportunity for reviving the question of the restoration of the east wall. A sub-committee was appointed to examine the whole question and report to the Council. This was done at the October meeting of the Council.

It will hardly be believed that the scheme of restoration proposed by the expert already mentioned was laid on the table of the sub-committee, and actually ignored. What he proposed was to fix, with a special process, the parts of Mr. Dyce's beautiful works that had not scaled off, and to repaint the bits that had come off so carefully, and in harmony with the other parts, that very few could tell where the old and new paint met, and finally to varnish the whole. With this process he believed that the pictures would last for generations. In place of taking any active notice of this scheme, the sub-committee accepted the advice of a gentleman to the effect that nothing could be done with Mr. Dyce's works, and that the best thing was to have them entirely covered up by wooden panels, or a canvas covering the wood, that these should be painted by some "artist" from Mr. Dyce's designs, and coloured in accordance with what he thought Mr. Dyce had intended, or ought to have intended. Thus Mr. Dyce's beautiful and valuable works would be practically wiped out by being covered up permanently by copies of no value. I moved at the meeting that the report of the sub-committee be not accepted, but as no one seconded my motion I entered a protest against what seemed to me a gross artistic blunder, and a slur on the beauty of the church, and then left the room. The objectionable course just named was accepted and finally decided on by the Council.

I did my best to prevent such a vandalism being committed, and entered my protest. As the scheme, however, is now to be carried out, I can but state the case in your valued columns, and leave it in the hands of the architectural and artistic professions, and in those of the general public, whose interest it is to prevent one of the most beautiful churches in London from being thus spoiled.

D. DYCE BROWN, M.A., M.D.

AMENDMENT OF THE LONDON BUILDING ACT.

THE following proposed amendments of the London Building Act were considered at Tuesday's meeting of the London County Council, and it was decided to introduce into Parliament the General Powers Bill, which includes these proposals. Some notes of the discussion which took place will be found on page 678.

Part V.

27. In this part of this Act the expression "the principal Acts" means the London Building Acts, 1894 to 1908.

28. Words and expressions used in this part of this Act shall, unless the context otherwise requires, bear the meanings assigned to them in the principal Acts, and those Acts and this part of this Act may be cited together as "The London Building Acts, 1894 to 1909."

29. Notwithstanding anything contained in the principal Acts requiring buildings to be enclosed with walls of the thicknesses and of the materials therein respectively described, it shall be lawful to erect buildings of iron or steel skeleton construction subject to the provisions of this section, but buildings so erected shall (subject to any exemptions contained in the principal Acts or any of them) be subject to and comply with all such provisions of the principal Acts, or any of them, and any by-laws made or in force thereunder as may not be inconsistent with or contrary to the provisions of this section. The following are the provisions which shall apply in respect of the construction of such buildings:—

(1) All rolled steel used in such construction

shall comply with the British Standard Specification for structural steel for bridges and general building construction.

(2) The skeleton framing of a building shall be capable of safely and independently sustaining the whole dead load and superimposed load bearing upon such framing.

(3) The pillars (which expression wherever used in this section, unless otherwise stated, means metal pillars, and includes all columns and stanchions or an assemblage of such columns or stanchions properly riveted or bolted together) supporting all iron or steel girders which carry walls, floors, or roofs shall be of iron or steel, and shall be completely enclosed and protected from the action of fire by a casing of brickwork, terra-cotta, or concrete. Such casing shall, towards the exterior surfaces of the enclosing walls of the building, be at least 8½ in. thick, and on all other surfaces of such walls at least 4 in. thick, the whole being properly bonded together.

(4) All iron and steel girders (except girders in floors and staircases) shall be similarly cased with brickwork, terra-cotta, or concrete not less than 4 in. thick, properly tied and bonded to the remaining work, but the edges of the flanges of the girders and plates and angles connected therewith may approach within 2 in. of the surface of the casing.

(5) The compression flange of every girder shall be secured against buckling whenever the length of the girder exceeds thirty times the width of the flange.

(6) The span of a girder shall not exceed twenty-four times the depth of the girder, unless the calculated deflection of such girder is less than one four-hundredth part of the span.

(7) All girders which carry walls or floors or roofs shall be of wrought-iron or mild steel.

(8) Wherever two or more girders or joists are arranged alongside one another, and are intended to act together in supporting a wall or any other load, they shall be fixed together by means of cast-iron separators and bolts, or by riveted plates, or in any other equally efficient manner which may be approved by the District Surveyor. Separators shall not be more than 5 ft. apart, and shall be placed immediately over all supports and immediately under or at all concentrated loads.

(9) All girders for supporting the enclosing walls shall be placed at the floor line of each story, or at a distance of not more than 4 ft. above or below such floor line.

(10) Rivets shall be used in all cases where practicable, but where bolts are used the ends shall be burred over. The distance from the edge of a rivet hole or bolt hole to the edge of the plate bar or member shall not be less than the diameter of the rivet or bolt. Rivets shall be so placed that their centres shall not be further apart than sixteen times the thickness of the thinnest plate bar or member through which they pass, or closer together than three times the diameter of the rivets. The pitch of rivets shall be measured in a continuous straight line, and such straight line pitch shall not exceed sixteen times the thickness of the thinnest plate bar or member through which they pass, or be less than three times the diameter of the rivets.

(11) No enclosing wall of the building shall be less than 8½ in. in thickness for the topmost 20 ft. of its height, or less than 13 in. in thickness for the remainder of its height below such topmost 20 ft., provided that the window backs may in all cases be 8½ in. in thickness. Provided also that a less thickness shall be allowed in any case in which under the London Building Act, 1894, such less thickness is prescribed.

All party walls shall be of the thicknesses prescribed by the principal Acts.

In any case in which an enclosing wall, or portion of an enclosing wall, is not supported or carried or secured by iron or steel frame construction within the limits of height and length prescribed by the first schedule to the London Building Act, 1894, for the purpose of determining the thickness of walls, such enclosing wall or portion of enclosing wall shall be of a thickness not less than that prescribed by such schedule.

(12) All brickwork and concrete shall be executed in Portland cement mortar, and shall be bedded close up to the iron or steel without any interfering cavity, and all joints shall be made full and solid. The cement so used shall be in accordance with the British Standard Specification. Nothing in this section shall prevent the use of stone as an external facing for buildings, provided that all work faced with stone shall be at least 4 in. thicker than the thickness prescribed by the last preceding subsection of this section, and shall have a backing of brickwork not less than 8½ in. in thickness.

(13) (*a*) No steel or wrought-iron pillar shall in any part be less than ¼ in. thick, nor shall any such pillar have an unsupported length of more than thirty-five times its least width, or more than 140 times its least radius of gyration.

(*b*) The ends of all such pillars shall be at right angles to the axis.

(*c*) All joints in such pillars shall be close-butted with cover-plates, properly riveted, and unless unavoidable no joint shall be made in a pillar except at or as near as may be reasonably practicable to the level of a girder properly secured to such pillar.

(*d*) The foot of every such pillar shall have a proper base-plate riveted thereto, with sufficient gusset pieces to distribute properly the load on the foundations, and the gusset pieces shall have sufficient rivets to transmit the whole of the load on to the base-plates.

(*e*) Where any such pillars are built up hollow, the cavities shall either be filled up with cement concrete or be covered in at both ends so as to exclude the air.

(14) (*a*) The width of every cast-iron pillar shall be not less than 5 in. and the metal of which such pillar is composed shall not be in any part of less thickness than ¾ in., or one-twelfth of the least width of such pillar (whichever shall be the greater), and no such pillar shall have an unsupported length of more than twenty times its least width.

(*b*) The caps and bases of such pillars shall be in one piece with the columns, or be connected thereto with a properly turned and bored joint sufficiently fixed.

(*c*) The ends of all such pillars shall be at right angles to the axis.

(*d*) All joints in such pillars shall be at or as near as may be reasonably practicable to the level of a floor, and shall be fixed and made with not fewer than four bolts of not less diameter than the least thickness of metal in the pillar. If more than four bolts are used the diameter of the bolts may be reduced proportionately, but no bolts shall be less than ¾ in. in diameter.

(*e*) The base of all such pillars shall have such area as may be necessary to distribute properly the load on the foundations.

(15) In all cases of superimposed pillars the sectional area of the pillar shall be continued through the full depth of any transverse girder or joist interposed between the pillars, and may be made up by providing stiffeners of an aggregate sectional area not less than that of the superimposed pillar.

(16) (*a*) All floors and all staircases (together with their enclosing walls) shall be constructed throughout of fire-resisting materials, and be carried upon supports of fire-resisting materials.

(*b*) All iron and steel carrying loads and used in the construction of any floor or staircase, and all internal pillars, shall be protected from the action of fire by being encased to the satisfaction of the District Surveyor, and to a thickness of not less than 2 in. in brickwork, terra-cotta, concrete, metal lathing, and plaster or cement. Wood firrings shall not be used in connexion with any such facing.

(17) All structural metal work shall be cleaned of all scale, dust, and loose rust, and be thoroughly coated with one coat of boiled oil or paint before erection, and after erection shall receive at least one additional coat. Where such metal work is embedded or encased in concrete, Portland cement wash may be used in lieu of oil or paint.

(18 (*a*) The dead load of a building shall consist of the actual weight of walls, floors, roofs, partitions, and all other permanent construction comprised in such building.

(*b*) The superimposed load in respect of a building shall consist of all loads other than the dead load.

(*c*) For the purpose of calculating the loads on pillars (including for the purposes of this paragraph brick pillars), piers, walls, framings, girders, joists, and other constructions carrying loads in buildings, the superimposed load on each floor and on the roof shall be estimated as equivalent to the following dead load:—

For a domestic building (not being a building intended to be used wholly or principally as offices or a counting-house), or a building intended to be used wholly or principally as a hotel, hospital, workhouse, lodging-house, 70 lb. per square foot.

For a building intended to be used wholly or principally as offices or a counting-house, or as a school, college, or place of instruction, 100 lb. per square foot.

For a public building (not being a building intended to be used wholly or principally as a hotel, hospital, workhouse, lodging-house, school, college, or place of instruction), or a building intended to be used wholly or principally as a workshop or retail shop, 112 lb. per square foot.

For buildings of the warehouse class not less than 224 lb. per square foot, but if the superimposed loads exceed 224 lb. per square foot such greater superimposed load shall be provided for pursuant to subsect. (2) of this section. In every building of the warehouse class a notice shall be exhibited in a conspicuous place on each story of such building stating the superimposed load which may be carried on the floor of such story.

For a roof the plane of which inclines upwards at a greater angle than 20 deg. with the horizontal the superimposed load (which shall for this purpose be deemed to include wind pressure) shall be estimated at 28 lb. per square foot of sloping surface.

For all other roofs the superimposed load shall be estimated at 56 lb. per square foot measured on a horizontal plane.

(19) For the purpose of calculating the total load to be carried on foundations pillars (including for the purposes of this subsection brick pillars) piers and walls in buildings of more than two stories in height the superimposed loads for the roof and top story shall be calculated in full in accordance with the last preceding subsection of this section, but for the lower stories a reduction of the superimposed loads shall be allowed as follows:—

For the story next below the top story a reduction of 5 per cent. of the full superimposed load calculated as aforesaid.

For the next succeeding lower story a reduction of 10 per cent. of the full superimposed load calculated as aforesaid and for each succeeding lower story a further reduction of 5 per cent. of the full superimposed load calculated as aforesaid. Provided always that the total reduction in respect of any story shall not exceed 50 per cent. of the full superimposed load.

No such reduction as aforesaid shall be allowed in the case of a building of the warehouse class.

(20) All buildings shall be so designed as to resist safely a wind pressure in any horizontal direction of the following respective amounts:—

(*a*) Where the height of the building does not exceed four times the least width thereof, 30 lb. per square foot.

(*b*) Where the height of the building exceeds four times the least width thereof, a number of pounds per square foot equal to two and one half times the ratio of the height of the building to its least width at the ground level added to twenty. Provided that it shall not in any case be necessary to provide for resisting a wind pressure of more than 50 lb. per square foot.

(21) The working direct stresses on pillars of cast-iron or mild steel shall not exceed those specified in the two next following tables according to the several ratios therein specified, or a proportionate load for intermediate ratios:—

CAST-IRON PILLARS.

Ratio of Length in Inches to least Radius of Gyration in Inches.	Working Direct Stresses in Tons per Square Inch of net Section.		
	Hinged Ends.	One End Hinged. One End Fixed.	Both Ends Fixed.
20	3·2	3·3	3·5
25	3·0	3·2	3·4
30	2·8	3·0	3·3
35	2·5	2·9	3·2
40	2·3	2·7	3·0
45	2·0	2·4	2·9
50	1·8	2·3	2·8
55	1·5	2·1	2·6
60	1·3	1·9	2·4
65	1·2	1·7	2·3
70	1·0	1·6	2·1

MILD STEEL PILLARS.

Ratio of Length in Inches to least Radius of Gyration in Inches.	Working Direct Stresses in Tons per Square Inch of Section.		
	Hinged Ends.	One End Hinged. One End Fixed.	Both Ends Fixed.
20	5·0	5·0	5·1
30	4·8	4·8	4·9
40	4·4	4·5	4·7
50	4·0	4·2	4·4
60	3·5	3·9	4·2
70	3·0	3·5	4·0
80	2·6	3·2	3·7
90	2·3	2·9	3·5
100	1·9	2·5	3·2
110	1·6	2·3	3·0
120	1·4	2·0	2·7
130	1·2	1·8	2·4
140	1·0	1·6	2·2

(22) The working direct stresses on wrought-iron pillars shall not exceed five-sevenths of the stresses hereinbefore specified with respect to the working direct stresses on mild steel pillars.

(23) Where a pillar is built into a wall the least radius of gyration of that pillar shall be taken for the purposes of the tables referred to in subsect. (21) of this section.

(24) The working stresses of iron and steel (except in the case of pillars as hereinbefore provided) shall not exceed the following:—

—	Working stresses in Tons per sq. in.			
	Tension.	Compression.	Shearing.	Bearing.
Cast-iron.....	1·5	8	1·5	10
Wrought-iron ...	5	4	4	7
Mild steel	7	7	5	10
Cast-steel	5	10	7·5	15

(25) The pressures of foundations on the natural ground shall not exceed the following:—

	Tons per sq. ft.
Natural bed of soft clay, wet or loose sand	1
Natural bed of ordinary clay and dry confined sand	2
Natural bed of ordinary gravel.....	3
Natural bed of compact gravel, London blue clay and chalk	4

(26) The pressure on concrete foundations shall not exceed 12 tons per square foot.

(27) No disengaged brick pillar shall have a height greater than twelve times its least width.

(28) The pressure on brickwork shall not exceed the following:—

	Tons per sq. ft.
Blue brick in cement mortar.....	12
Hard brick (including London stock) in cement mortar	8
Common brick in cement mortar.....	5

(29) Any person proposing to erect a building of iron or steel skeleton construction shall not less than one month before the commencement thereof, deposit with the District Surveyor a complete set of drawings of such building, showing the details of construction of all its parts, together with a detailed copy of all the calculations of the loads and stresses to be provided for, and particulars of the materials to be used. Should such drawings, calculations, or particulars be, in the opinion of the District Surveyor, not in sufficient detail, the person depositing the same shall furnish the District Surveyor with such further drawings, calculations, or particulars as he may require.

(30) The District Surveyor may, for the purpose of due supervision of the building, and at the expense of the owner of the building, cause any pillar to be drilled at any point to ascertain its thickness, and may cause to be made any other tests which he may consider desirable.

(31) All buildings in accordance with the foregoing provisions of this section shall be constructed to the satisfaction of the District Surveyor.

(32) Any person dissatisfied with any requirement or decision of the District Surveyor under this section may appeal to the Council, whose determinations shall be final.

(33) It shall be lawful for the Council, in any case in which they think fit so to do, to modify or waive any of the requirements of this section, and to impose any terms and conditions upon any such waiver or modification, and any person failing to comply with any such term or condition shall be liable to a penalty not exceeding 20*l.*, and to a daily penalty not exceeding a like amount.

30. (1) The Council may make regulations with respect to the construction of buildings wholly or partly of reinforced concrete, and with respect to the use and composition of reinforced concrete in such construction, and for the purpose of framing such regulations may carry out such investigations and make such tests as they may deem necessary, and the provisions of this section and of any such regulations shall have effect, notwithstanding any provisions of the principal Acts or any of them, or any by-law made or in force thereunder which may be inconsistent therewith or contrary thereto.

(2) Subject to such regulations as aforesaid, buildings may be constructed wholly or partly of reinforced concrete, but except as provided by this section or by such regulations, buildings so constructed shall (subject to any exemptions contained in the principal Acts or any of them) be subject to and comply with all such provisions of the principal Acts or any of them, and of any by-laws made or in force thereunder as may not be inconsistent with or contrary to the provisions of this section or any regulations made thereunder.

31. For the purpose of securing the due observance of the provisions of this part of this Act and any regulations made thereunder, such provisions and regulations shall be deemed to form part of Part VI. of the London Building Act, 1894, and any references in the principal Acts to the said Part VI. shall be construed accordingly.

32. Where more than one-half of the whole structure of any building consists of iron or steel skeleton construction or reinforced concrete, the fee to which the District Surveyor shall be entitled in respect of any of the matters referred to in Part I. of the third schedule to the London Building Act, 1894, under the respective headings "On new buildings" and "On additions, alterations, or other works," shall be a fee exceeding by one-half the amount of the fee specified in that portion of the said part of the said schedule which precedes the proviso therein contained, and where any fee is increased under the provisions of this section, there shall be no further increase under the said proviso.

Master Builders' Associations, etc.

EDINBURGH BUILDING TRADES' ASSOCIATION AND EXCHANGE.

The annual dinner of the Edinburgh, Leith, and District Building Trades' Association and the Building Trades' Exchange of the City and District of Edinburgh was held in the Royal British Hotel, Princes-street, Edinburgh, on the 10th inst. Mr. David Mekie presided, and the croupiers were Messrs. P. Knox, J. Millar, and Allan Old. After the loyal and patriotic toasts had been pledged, Mr. R. Gilchrist proposed "The Edinburgh, Leith, and District Association and the Building Trades' Exchange." He said their labours were all in the right direction. It was their aim and object to lift up the conditions which ruled building throughout Edinburgh and district, and put it on a level befitting the conditions which applied to methods of contracting so far as they applied to the building trades. In replying for the Association, Mr. Mekie expressed the hope that they had now reached the bottom level of dulness in the trade. Regarding the inter-trading rule which had been under discussion recently, he said the Association recognised that each branch trade depended on the other, and therefore they desired to open their doors to all trades directly connected with the building trade. Any question affecting a branch trade would be ventilated at the meetings of the Association's Executive to which the trades would appoint delegates. This would save the trouble of forming independent associations, and would give the trades the benefit of the Association officials and machinery. Much good was expected to come of the new movement. Responding for the Exchange, Mr. W. Graham-Yool said that many of the towns were overbuilt. It would be some time yet before things would revive, because, in addition to the overbuilding, there had been, owing to the general bad state of trade, a large exodus of population. In proposing the toast of "The Corporations of Edinburgh and Leith," Mr. Graham-Yool said regarding unemployment the Town Councils were not justified in finding employment for wastrels on unremunerative work, and thereby saddling the whole community with the cost, and probably borrowing money to perform it, and thus carrying on the debt for a number of years. Councillor Douglas and Bailie Craig, Leith, replied.

YORKSHIRE FEDERATION (HULL BRANCH).

The annual meeting of the Hull Branch of the Yorkshire Federation of Building Trade Employers was held at the Builders' Exchange, Posterngate, on December 9, the retiring President, Mr. J. T. Levitt, being in the chair. The Treasurer, Mr. G. H. Scorrer, in presenting the financial statement, was able to report a successful year's working, and that the funds of the Association were never in a more flourishing condition. After a vote of thanks had been accorded to all retiring officers, Mr. E. Quibell was elected President for the ensuing year. Amongst other business it was decided that August Bank Holiday week be made a general holiday throughout the building trades of Hull. The opinion was that this arrangement would be a boon to all concerned, as it would make it possible for many to get away for a holiday who otherwise would be unable to do so, and it would also make a good opportunity for the overhauling of machinery, etc.

NEWPORT MASTER BUILDERS' ASSOCIATION.

The annual dinner of this Association was held at the King's Head Hotel, Newport (Mon.), on the 8th inst. Mr. A. W. Brownscombe presided, and among those who had accepted invitations was the Mayor of Newport (Mr. Graham W. White). Mr. L. H. Hornby proposed "The Town and Trade of Newport," and Mr. T. Parry, in responding, said that they were looking forward to great developments, and he thought that in a few years the twelve or thirteen millions of tons of coal which they exported last year would be more than doubled. Before long they would be called upon to provide improved means of communication over the river, but they had no reason to fear that, for they were taking time by the forelock. They were also taking into consideration other improvements which would mean great prosperity in the building trade. Mr. M. Mordey also responded. Mr. R. W. Moon proposed "The Architects and Civil Engineers," and said that while he agreed it was necessary they should have a borough architect and engineer, yet he felt encouragement should be given to the younger men in the town to display their abilities. For instance, the lines on which their educational buildings were constructed were very narrow, and could be improved upon if the younger men were given a chance. Mr. E. H. Fawckner and Mr. W. C. Kirby responded. Mr. F. J. Heybyrne gave "The Building Trade," and expressed satisfaction at the peace which had existed in the building trade of Newport for some time. He believed there was a bright future before the building trade in Newport, for they had men capable of competing with those of any town. Mr. W. A. Linton, in responding, said that the state of the building trade in Newport during the past year had been one of depression, and this, he thought, was due to the fact that, though the volume of trade had been great, the profits had been small. There were signs, however, that there was going to be an improvement. The contract signed by the Town Council that day would leave 15,000*l.* in the hands of the workmen. There were other great buildings to be erected, while he looked forward to the extensions at the docks bringing a great import trade which would prove of benefit to the building trade. Mr. W. M. Blackburn proposed "The Timber, Stone, Brick, and Kindred Trades," to which Mr. E. T. Cotterell (Bath), Mr. E. De Vere Brewer, and Mr. C. F. Williams responded. Mr. George Martin proposed "The Visitors," and the toast of "The President" was given by Mr. W. Jewell. Mr. Brownscombe, replying, thanked the members of the Association for the loyal support they had given him. During the year they had been endeavouring to frame rules by which labour disputes and the consequent dislocation of trade would be avoided. He hoped that in future all such disputes would be settled by arbitration.

COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held at the Guildhall on Thursday last week, the Lord Mayor presiding.

The Hornchurch Wharf.—The Streets Committee, reporting on the condition of the existing wharf at Hornchurch, stated that they had given instructions for at once filling up the cracks in the concrete decking, piles, and curtain wall, at an estimated cost of 100*l.*

Bishopsgate-street Without.—It was agreed, on the recommendation of the Improvements and Finance Committee, in regard to the widening of this street, between Angel-alley and the City boundary, that notices be served to acquire all interests in the whole of the properties required for the improvement.

Fleet-street.—The same Committee submitted for adoption an arrangement for acquiring the freehold interest in the ground required to widen the public way in front of No. 47, Fleet-street, for the sum of 5,500*l.*—The Court approved.

The Guildhall Library.—The Library Committee recommended that they be authorised to construct a new storeroom for books under the bridge connecting the library corridor and the Lord Mayor's room, at an estimated cost of 30*l.*, of 250*l.*, to rail it at an estimated cost of 60*l.* and provide five rolling stocks for books at an estimated cost of 60*l.* In the course of a discussion which followed, it was moved that consideration of the matter be postponed, and this was carried by a large majority.

New Staircase at the Guildhall.—The City Lands Committee, in a report, stated that the construction of the new staircase from the Guildhall into the crypt had involved the expenditure of a sum of 27*l.* 14*s.* 7*d.* in excess of the amount (444*l.*) authorised by this Court; also that a sum, amounting in the aggregate to 242*l.*, has been expended in enlarging and improving the lavatory accommodation connected with the members' reading-room at Guildhall. The Court authorised the payment of the additional amounts.

LONDON BOROUGH COUNCILS.

Bermondsey.—The paving of Tower Bridge-road (Tooley-street end estimated cost 550*l.*) and the paving of a portion of Stoney-lane (estimated cost 360*l.*) are to be put in hand.

Bethnal Green.—The Law and General Purposes Committee of the Borough Council have under consideration the whole matter of tenement house by-laws, with a view to submitting at an early date a report setting forth the necessary amendments or additions to the code of by-laws at present in force in the borough.

Chelsea.—Thirty-three tenders were received for the erection of working-class dwellings on the Grove-cottages site, Manor-street, and the Public Health Committee have accepted (subject to the usual sanctions) that of Messrs. Gathercole Brothers, of London-road, Norbury. The negotiations between the Borough Council and the Trustees of the Sutton Estate with regard to minor points as to the site to be utilised for the erection of working-class dwellings in Marlborough-square are progressing satisfactorily.

Deptford.—The award of Mr. Ernest George, the President of the Royal Institute of British Architects, on the subject of Mr. Bonner's fees in connexion with the erection of the mortuary and coroner's court has been received. The arbitrator allows Mr. Bonner 46*l.* 12s., and disallows him the sum of 62*l.* 11s., and directs that the costs of the arbitrator, amounting to 15*l.* 15s., shall be paid in equal moieties by Mr. Bonner and the Council. The sum of 46*l.* 12s. added to the amounts already admitted on behalf of the Council as due to Mr. Bonner makes a total of 299*l.* 4s. 5d.

Greenwich.—A portion of Old Dover-road is to be paved, at an estimated cost of 393*l.*, and the Finance Committee have passed an estimate of 106*l.* for repairing part of Old Woolwich-road. The Highways Committee have had under consideration the advantages which would accrue in the direction of a saving in the cost of scavenging and watering, and also the lengthened life of and better general condition of the macadamised roads in the borough if the system was adopted of painting same with tar after their repair, and they have decided that the Borough Engineer be instructed to carry out such painting on all ordinary macadamised roads when repaired and put in good order. The General Purposes and the Highways Committee have had under consideration the London County Council tramway proposals, and have come to the conclusion that the proposed line from the present terminus to Rainton-road should be approved under conditions. With regard to the proposed extension from Rainton-road to the borough boundary the joint committee have as yet come to no decision.

Hackney.—No objection is to be offered by the Borough Council to the proposed laying by the London County Council in connexion with the electrification of the tramways, of stoneware ducts along Upper Clapton-road, and the fixing of two-feeder pillars.

Lambeth.—Application is to be made to the London County Council for a loan of 3,424*l.* With the exception of 345*l.*, for laying out a children's playground, the whole of the amount is proposed to be spent in paving works. Messrs. F. & C. Foster, contractors, have completed the construction of the Brockwell Park underground convenience, at a total cost of 2,310*l.* The contract price was 2,192*l.* Between now and March 31, sewers are to be constructed at an estimated cost of 804*l.*, and gulley work is to be carried out at an estimated cost of 604*l.* Tenders are to be invited for repairs to and the redecoration of the North Lambeth Library. The Highways Committee reported at the meeting of the Council on December 10 having sanctioned the execution of the following works:—Repaving portion of Waterloo-road, estimated cost, 570*l.*; repairs to carriageways of Effra-road, 262*l.*; repairs to carriageways of Bedford-road, 200*l.*

Lewisham.—The General Purposes Committee have had under consideration a letter from Mr. W. J. Price, one of the Surveyor's professional assistants, stating that the Institution of Civil Engineers have been approached by the War Office with the object of utilising the special qualifications of civil engineers for military purposes in the event of a national emergency, and that he (Mr. Price) desires to make application for a commission on the Special Reserve of Officers as second lieutenant "on probation" in the Royal Reserve Engineers. To do this it would be necessary that he should undergo one year's course of military engineering at Chatham, and subsequently, on confirmation of the commission, an annual training of fifteen days, which might be taken in lieu of holidays. Under these circumstances Mr. Price asked for twelve months' leave of absence. The Borough Surveyor informed the Committee that Mr. Price's duties could be carried out by means of temporary assistance, and the Committee, being of opinion that the application is one that should be acceded to, have decided that in the event of Mr. Price's services being accepted by the War Office, he be allowed one year's leave of absence without pay. Springrice-road, Hither Green, and part of Wearside-road are to be paved and formed as new streets at an estimated cost of 695*l.* and 611*l.* respectively.

Marylebone.—Messrs. Constable, Hart, & Co., Ltd., are to lay tarmac in the carriageway of Upper Dorset-street at 3s. 6d. per super. yard (estimated total cost 106*l.*). The special sub-committee on street lighting have decided in favour of accepting the offer of the Electric Supply Committee to substitute electricity for gas in those streets where electrical mains are now laid, the present lamp standards and lanterns being utilised. The number of lamps affected is 1,964. The Works Committee propose that, subject to a contribution being made from the Central (Unemployed) Body, wood-paving be substituted for macadam in Lisson-grove at an estimated cost of 3,000*l.*

Paddington.—The tender of Messrs. G. Andrews & Co., 39, Craven-road, at 424*l.*, for external painting and repairing works to the old portion of the Town Hall has been accepted. The Borough Surveyor has been instructed to pave a portion of Norfolk-crescent with creosoted spruce blocks at an estimated cost of 410*l.* The Works Committee has accepted (subject to the usual sanction) the Trinidad Lake Asphalte Paving Company's tender for 1½-in. compressed asphalt at 5s. 6d. per square yard. The Company, the Committee state, are the only firm of nine who were invited to send in quotations which employ exclusively British labour and materials. The paving to be laid is to be maintained free of cost for ten years. A gift of 100*l.* worth of trees has been received, and these are to be planted in the streets.

St. Pancras.—Dr. J. F. J. Sykes, the Medical Officer of Health for the Borough, has prepared an important report as to requirements for ventilation of flats under the London Building Acts. The point arose in connexion with an application to the London County Council for a certificate under sect. 7 of the Act of 1905, that the requirements thereof had been complied with in the construction of buildings at Flaxman-terrace. Dr. Sykes draws attention to the fact that the requirements of the District Surveyors, and of the London County Council in regard to fire, demand in houses constructed in flats of fire-resisting materials that on the staircases the front doors of the flats shall be automatically closing, and that the fanlights over such doors shall be fixed, the effect of which is that no airing of a flat dwelling can be obtained through the door or fanlight on the staircase. One of the conditions of approval by the Borough Council of the plans of the Flaxman-terrace dwellings was that the buildings should be capable of being aired or "blown through" in the morning after having been closed up during the night. This airing or "through blow" of air (of which the term "through ventilation" conveys an utterly inadequate conception) can only be obtained from one front of a building through to another front. If the "through blow" has to be obtained within the dwelling or flat itself, and not off the staircase outside the flat, the conditions of construction are restricted to such an extent that only two dwellings or flats can be designed on each floor, and this mode of construction is therefore very costly. Economy demands four flats on each floor, and compels two of the four flats to be so constructed that all the rooms must be on one front, as was the case in the back-to-back houses which were condemned on this site, and which these flats have displaced. No "airing" or "through blow" is possible in a one-fronted dwelling or flat where the openings are all on one side, as it is physically impossible for the wind to blow out of the same opening as it blows into, and the only way of obtaining a "through blow" is by an opening on the other side of the building. For one-fronted flats this "through blow" can only be obtained by means of the front door with fanlight over through the common staircase to an opening in the outer wall on the other side of the staircase. The reason given for the requirement of the London County Council is that if a fire occurred in a flat the smoke might fill the staircase. He (Dr. Sykes) ventured to suggest that the remedy is to require the staircase to be more open to the air. A horizontal arcade even when only reaching to the first floor level is a notoriously unhealthy mode of construction, unless it is short and fully open to the air at the sides or ends, and a vertical arcade, such as the common staircase of a house constructed in flats, is an equally unhealthy mode of construction, unless there be sufficient openings to allow of ample and permanent communication with the open air. The best way to remedy a draught is to make the openings larger without necessarily going to the extreme of removing the whole of the enclosing arcade so as to make it vertically or horizontally an open street. In conclusion, the Medical Officer urged that the attention of the London County Council should be called to the fact that the requirements of the London Building Acts in regard to fire on such staircases are obstructive of the airing of dwellings, and conducive to the increase of consumption in the metropolis. The London County Council are to be communicated with accordingly.

Stepney.—A 9-in. pipe sewer is to be laid in Spring Garden-place, Ratcliffe, at a cost of 125*l.* Mr. M. Calman, 242A, Commercial-road, E., who has prepared a scheme for building, at a cost of 10,000*l.*, three blocks of houses in Adelina-grove, has written to the Works Committee offering certain land for the widening of the grove if the local authority will at their own expense pave such land and carry out works incidental thereto. The Works Committee have agreed to this.

Stoke Newington.—There were 206 candidates for the position of second assistant in the Surveyor's Department. The final choice lay between Mr. C. C. V. Roebuck (assistant surveyor at Herne Bay) and Mr. F. G. Staley (second assistant, Surveyor's Department, Gloucester). At the meeting of the Borough Council on Tuesday night, the last-named gentleman was appointed by twenty-three votes to four. Mr. Staley has occupied his present position for two years. He was previously third assistant for two years, after having served his articles for three years with the City Surveyor of Gloucester. In reference to the Church-street improvement an agreement has been signed with Mr. Arthur Whincop providing for the surrender by him of his leasehold interest in Nos. 26 to 40, Church-street, on conveyance to him by the Council of two freehold plots of land on the widened site.

Wandsworth.—The following estimates have been passed by the Finance Committee:—Wood and stone paving works in connexion with the electrification of the tramways in Streatham High-road, 15,720*l.*; Tooting Bec improvement, 1,540*l.* Messrs. J. Mowlem & Co., Ltd., are to carry out paving works in Franciscan-road, Tooting, the price under the contracts (two) being 1,081*l.* Mr. R. Dykes is the successful tenderer for the paving of Effordroad, Tooting, at 260*l.* Messrs. S. Lane & Co. are to repair Gressenhal-road, Southfield, at 219*l.*, a tenderer, whose quotation had previously been accepted, having withdrawn. Portions of the footways of Southcroft-road, Streatham, of Pulborough-road, Southfield, and Upper Richmond-road, Putney, are to be paved and channelled.

PROPOSED NEW BUILDINGS, ETC., IN LONDON AND SUBURBS.

TWELVE houses, Jebb-street, Poplar. Mr. E. Evans, surveyor, 253, Lavender-hill, S.W.

Refreshment-room, shelter, etc., in Central Park, East Ham. Mr. A. H. Campbell, Surveyor, Town Council.

Five houses and one shop, Grosvenor-gardens, East Ham. Mr. P. Herapath, builder, 121, Milton-avenue, East Ham.

Fourteen houses and two shops, Boundary-road, East Ham. Mr. W. G. Watson, builder, 2, Milton-avenue, East Ham.

Twelve houses, Blenheim-road, East Ham. Mr. A. W. Pierce.

Twelve houses and two shops, Church-road, East Ham. Mr. G. H. Bowhay.

Thirty-six houses, Rosemount-avenue, Finchley. Mr. C. F. Day, builder, 21, Regent's-park, Finchley.

Twenty-one houses, Cornwall-avenue, Finchley, for Mr. T. J. Allen.

Eleven houses, Holmbury-view, Upper Clapton, N.E. Mr. F. Collins, builder, Springfield House, Upper Clapton.

New street between Hawkwood Mount and Big Hill, Hackney, N.E. Mr. C. Thompson, architect, 46, Thistlewaite-road, Lower Clapton.

Eighteen houses, Ravensdale-road, Hackney, N.E. Mr. P. Roche, builder, 127, Springbank-road, Hither Green, S.E.

Additions to warehouse at rear of 9 and 11, London-lane, Mare-street, Hackney, N.E. Messrs. V. Fortescue & Sons, Ltd., contractors, 215, Mare-street, Hackney.

Addition to Regent House, Great Stanmore, Hendon, N.W., for Mr. Clutterbuck.

Alterations and additions, Leto Works, Meads-road, Little Stanmore, Hendon, N.W., for Mr. R. E. Thomas.

Police-station and quarters, Battersea. Mr. J. Dixon Butler, Architect, New Scotland-yard, S.W.

Factory, Somers-place, Lambeth, S.E., for the Trustees of the Stockwell Orphanage.

Two houses, Canterbury-grove, West Norwood, S.E. Mr. H. Bignold, architect, 242, Lavender-hill, Clapham Junction, S.W.

Rebuilding Joiners' Arms public-house, Church-street, Deptford, S.E. Messrs. Wylson & Long, architects, 16, King William-street, E.C.

Store, 22, Rotherhithe-street, Bermondsey, S.E., for Mr. A. Groom.

Rebuilding "Hyde Cliff," Wellington-grove, Greenwich, S.E., in connexion with the Ursuline Convent. Mr. W. Nash, builder, Childers-street, Deptford.

Five houses, Chalcroft-road, Lewisham, S.E. Messrs. W. J. Scudamore & Sons, 13, Manor-lane, S.E.

Development of Park Royal Estate, North Acton, W. Messrs. Redfern & Hunt, solicitors, 13-14, Abchurch-lane, W.C.

Additions to Aylesbury Dairy Company's premises at St. Petersburgh-place, W. Mr. W. J. Keith, architect, 7, East India-avenue, E.C.

Eight houses, Denmark-road, Twickenham. Mr. G. F. Sharpe, architect, 57 and 58, Chancery-lane, W.C.

New bakehouse, etc., London-road, Twickenham. Messrs. Howard Goadby & Marrian, architects, Bank Chambers, London-road, Twickenham.

Proposed new road on the Cross Deep House Estate, Twickenham. Mr. E. Pennington, architect, Grosvenor-buildings, The Quadrant, Richmond.

Two houses, Felbrigge-road, Ilford. Mr. E. T. Dunn, architect, 7, Rodney-street, Ilford.

Four houses, Mortlake-road, Ilford. Mr. E. Partridge.

Extension of Cromwell-avenue, Bromley (Kent). Messrs. Levens, Son, & Hoar, surveyors, 1, Station-buildings, Beckenham.

Additions, Upway, Elmstead-lane, Bromley (Kent). Messrs. Thorne, Trehearne, & Norman.

New stables, etc., Farwig-lane, Bromley (Kent). Mr. F. G. Crickett.

Three houses, Salisbury-road, Bromley (Kent). Mr. E. W. Thomsett.

Additions to buildings of Sutton Co-operative Society, Sutton.

Rifle range, Temple Sheen-road, Barnes, for the Isleworth Brewery Company.

Two houses and one shop, South Worple Way, Barnes. Messrs. C. Ellis & Co., builders, Portman Estate, East Sheen.

Four houses, Temple Sheen-road, Barnes. Messrs. Tyers & Jago, architects, 10, John-street, Adelphi, W.C.

New roads, Barker Estate, Barnes. Messrs. Tyers & Jago, architects, 10, John-street, Adelphi, W.C.

PROJECTED BUILDINGS IN THE PROVINCES.

ABERDARE (Glamorgan).—Dwellings (10,000*l.*), Mr. Owen Williams, architect, Town Hall, Aberdare; receiving home, Mr. T. Roderick, architect, 23, Clifton-street, Aberdare.

Aberborgoed (Mon.).—County school. Mr. J. Bain, architect, Arcade-chambers, High-street, Newport, Mon.

Bournemouth.—Works, West Cliff. Mr. F. W. Lacey, Borough Surveyor, Bournemouth.

Colchester.—New Co-operative stores and premises. Messrs. Goodey & Cressall, architects, High-street, Colchester.

Cambridge.—School (15,000*l.*). Mr. Julian, Borough Engineer, Cambridge.

Castle Donington (Leicester).—County school for Leicester County Council. Mr. W. Brand, architect, 33, Bowling Green-street, Leicester.

Cardiff.—Warehouse for Mr. F. W. Wide, 46, Oxford-street, Cardiff; Extension of premises, Tresillian-terrace, Mr. E. W. M. Corbett, architect, Bute Estate Office, Castle-street, Cardiff: alterations, Windsor Arms public-house, Stuart-street, Mr. S. Williams, architect, Borough-chambers, Wharton-street, Cardiff; four houses, Pencisely-road, Mr. J. W. Rodger, architect, 14, High-street, Cardiff; nine houses, Lisvane-street, Mr. E. W. M. Corbett, architect, Bute Estate Office, Castle-street, Cardiff; eight houses, Llanishen-street, Messrs. Veall & Sant, architects, 5 and 6, Arcade-chambers, High-street, Cardiff.

Deopham.—County school. Education Architect, Shire Hall, Norwich.

Devonport.—Church. Mr. G. H. Fellowes Prynne, architect, Queen Anne's-gate, S.W.

Fakenham (Norfolk).—School. Mr. H. Green, architect, 31, Castle-meadow, Norwich.

Fletton (Peterborough).—School. Mr. H. Leete, architect, Huntingdon.

Folkestone.—Library. Mr. A. E. Nicholls, Borough Surveyor, Folkestone.

Great Yarmouth. — Addition, hospital, Messrs. Olley & Haward, architects, Queen-street, Great Yarmouth; additions, infirmary, Mr. H. Arnott, architect, High-street, Gorleston-on-Sea.

Kempnall (Norfolk).—Institute and club-house. Mr. E. Tench, architect, Norwich.

Lynton (North Devon).—Church. Mr. L. Stokes, architect, Great Smith-street, S.W.

Neath (Glamorgan).—Bank for Metropolitan Bank of England and Wales. Mr. J. Moxham, architect, Castle-street, Swansea.

Northampton. — Hippodrome. Mr. Bertie Crewe, architect, 75, Shaftesbury-avenue, W.C.

Norwich.—Offices for Guardians of Poor. Messrs. Morgan & Buckingham, architects, 1, Upper King-street, Norwich.

Paulton (Bristol).—Church institute (2,000*l.*). Mr. T. Melhuish, architect, Old Grammar School, Shepton Mallett.

Peterborough.—Church institute, Mr. S. Dodson, architect, Peterborough; fire-station, Mr. F. J. Gill, architect, 236, Rolfe-street, Smethwick, Birmingham.

Plymouth.—Church, Mr. T. R. Kitsell, architect, George-street, Plymouth; additional stables at Station-road for Great Western Railway Company; store, etc., Martin-street, for the Octagon Brewery Company; extension, motor garage, Athenæum-place, J. H. Andrews & Co.; conversion of old Commercial Sale-rooms, Cornwall-street, into shops, etc., J. Yeo & Co.

Pontllanffraith (Mon.).—School. Mr. J. Bain, architect, Arcade-chambers, High-street, Newport, Mon.

Saffron Walden (Essex).—Alterations, hospital, Mr. A. Edward, architect, 51, High-street, Saffron Walden; new wing, Grammar School, Mr. W. C. Robinson, architect, Audley End.

Truro (Cornwall).—Museum buildings. Mr. Sampson Hill, architect, Redruth, Cornwall.

Walsall.—Rolling mill and chimney stack, Green-lane, Birchills, for the Talbot Stead Tube Company, Ltd.; alterations and extensions to works, Bloxwick, for the New Delaville Spelter Company, Ltd.

Walsoken (Norfolk).—County school. Mr. T. M. Kerridge, architect, Old Market, Wisbech.

Woking.—Technical school. Messrs. Jarvis & Richards, architects, Queen Anne's-gate, S.W.

Woolacombe (Devon).—Church. Mr. W. D. Caröe, architect, 3, Great College-street, S.W.

Obituary.

MR. MALLINSON.

The death occurred on the 5th inst., at his residence, Filey, of Mr. George Mallinson, retired architect and surveyor, at the age of 77 years. Mr. Mallinson, who, according to the *Sheffield Telegraph*, built the first stone church in New Zealand, at Port Lyttleton, was a native of Dewsbury, and served his articles with the firm of Barry & Brown, Liverpool. He was the first pupil to win the first prize of the Architectural and Archæological Society, and went out to New Zealand in 1854, and was there during the stormy days of the Maori War. He was afterwards in practice in Leeds and Dewsbury, and later in Ripon.

General Building News.

CHURCH OF ST. LAWRENCE, EXETER.

This church has been reopened after considerable repair and renovation, much of the oak roof having decayed and the local slate covering become disintegrated. The church has a very interesting XIVth century screen with three stalls attached. Messrs. Ham & Passmore were the contractors, and Mr. Harbottle Reed, of Exeter, the architect.

NEW AISLE, ST. PETER'S CHURCH, LITTLEOVER.

The Bishop of Derby recently dedicated the new aisle which has just been added to this church. The only way to provide more room without practically destroying the old church was to remove the south wall and build an aisle from west to east on this side. This part of the church, though considerably altered, still retains much interesting old work. Photographs were taken and enlarged to show every stone and joint before anything was removed, and the whole then taken down, marked, and re-erected south of its original position, every stone and feature being most carefully preserved. It was in the course of this work that remains of the Norman church were discovered embedded in the old walls. The new aisle is 63 ft. long, and 15 ft. wide, including the clergy vestry, which is screened off at the east end. It provides additional seating accommodation for just over a hundred people. As far as the old work is concerned, it is built on the lines of the original, though in its new features a freer treatment is adopted. The porch erected by Stevens in 1856 has been slightly altered and rebuilt. The whole church is reseated with open seats, and the chancel with oak stalls, from the works of Mr. Bridgeman, of Lichfield, who is also responsible for the oak screen forming clergy vestry at the eastern end of the new aisle, and for all the stone and wood carving. The nave roof has been improved by the insertion of six clear-story lights. The general contractors for the work are Messrs. J. Parker & Sons, Friargate, Derby. Their estimate was 1,813*l.* 13*s.* The ironwork to the doors and the gas fittings are by Mr. Edwin Haslam, and the heating by Mr. Swingler, of Littleover. The architects, under whose supervision the whole of the work has been carried out, are Messrs. Naylor & Sale, Derby.

CONGREGATIONAL CHURCH, EBBW VALE.

The foundation-stones were recently laid of the new Tabernacle English Congregational Church at Ebbw Vale. The new church is being built by Messrs. S. T. Davies & Son, from the designs and under the superintendence of the architect, Mr. T. Roderick, Aberdare. In the basement there will be a school-room, with accommodation for 550, and kitchen and heating chambers. The church will accommodate 700 persons. The contract price is 3,364*l.*

NEW CHURCH, MISKIN.

The foundation-stone of the Church of St. John the Baptist, Miskin, Mountain Ash, was laid on the 7th inst. The building will consist of a nave, north and south aisles, chancel, organ-chamber, and vestries, and will seat, when completed, 532 people. The first portion of nave, aisles, and south porch is being built by Messrs. J. E. Turner & Sons, of Cardiff, at a cost of 3,230*l.*, from designs prepared by Mr. Bruce Vaughan, architect, of Cardiff.

NEW CHURCH, REDDISH.

The new Church of St. Agnes, at North Reddish, was recently consecrated by the Bishop of Burnley. The two bays at the west end of the nave, including the main porches, have not yet been proceeded with, and the belfry over the clergy entrance is temporary. The total accommodation of the church will be for 600 persons when completed, and the present building has been erected at a cost of 5,000*l.* The building externally is carried out in light-coloured brickwork, contrasted with deep red terra-cotta tracery, strings, bands, cornices, etc. Internally the church is faced with red brickwork, the columns, etc., to the nave arcade being of Alderley stone. The architects are Messrs. C. K. & T. C. Mayor, of Manchester. The fittings of the interior have been made by Messrs. Pearson & Brown, of Weaste; the general contractors for the whole of the building being Messrs. George Macfarlane & Son, of Chorlton-on-Medlock, Manchester.

UNITARIAN CHURCH, MAIDA VALE.

This new church, which was opened last week, which is situated on the north side of Quex-road, has been designed in the decorated form of Gothic architecture, and is erected in Brindle bricks, with Bath stone dressings, and roofed with Broseley tiles. The church will accommodate some 300 sittings, exclusive of the choir seats in the chancel. Internally it is finished in red bricks, with an open wooden roof, supported upon an arcade of oak pillars, which divide the church into nave and narrow aisles. On either side of the chancel are the vestry and organ-chamber. The church is heated by low-pressure hot water, and is lighted throughout by electric light, both of which works having been carried out under the direction of Mr. F. J. Moffett, of Birmingham. The building has been carried out by Messrs. Dove Brothers, Ltd., at a cost of about 3,500*l.*, from designs prepared by Mr. Chatfeild Clarke, under whose supervision the works have been executed.

CHAPEL, ABERTRIDWR.

The memorial-stones have just been laid of the new Welsh C.M. Chapel (Nazareth), Abertridwr, which has been erected at a cost approaching 2,000*l.* The building is of Forest and local stone, and has seating accommodation for 650 persons. The builder was Mr. John Williams, Brynteifi, Aber, and the architect Mr. Lundy, of Cardiff.

WESLEYAN METHODIST CHAPEL, ALVERDISCOTT.

The Wesleyan Methodists of the Bideford circuit are erecting a chapel and schoolroom at Alverdiscott. The architect of the new premises is Mr. W. J. Copp, of Bideford, and the builders are Messrs. Ridge & Shute, Bideford. The chapel is to be built with local stone and Marland brick, in Gothic style, and will provide seating accommodation for 120. The schoolroom will seat a similar number, and by removing a sliding partition the two rooms may be thrown into one.

WESLEYAN CHAPEL AND SUNDAY-SCHOOL, MERRYMEET.

New Wesleyan chapel and Sunday-school premises have been opened at Merrymeet from plans by Mr. John Sansom, architect, Liskeard. The joint contract, amounting to

921*l.* 15*s.*, of Messrs. H. Davey, Pengover, and J. Laundry, Menheniot, for the masonry and joinery respectively was accepted.

PROPOSED NEW POST-OFFICE, INVERURIE.

Negotiations have now been completed for the erection of a new post-office at Inverurie. The building is to be erected on West High-street, and the block will contain, in addition to the post-office, a shop and house accommodation above. The structure will be of granite with polished facings. The architect is Mr. G. Bennett Mitchell, of Aberdeen.

PROPOSED ISOLATION HOSPITAL, NEWPORT, ISLE OF WIGHT.

Dr. W. Johnstone, Local Government Board Inspector, recently held a public inquiry at the Guildhall, Newport, into the application of the Rural District Council for sanction to borrow 8,000*l.* for the provision of an infectious diseases hospital on a site purchased by that Council at Staplers, near Newport. Mr. S. R. Cocks is engineer and architect for the hospital.

BUSINESS PREMISES, BELFAST.

New business premises, known as Albion-chambers, have been erected in High-street, Belfast. The front windows of the building are filled with plate-glass, and the portions above the transomes in the first and second floor office windows with leaded lights, the latter having been designed and supplied by Messrs. W. F. Clokey & Co. At the rear of the building the roof is finished with Mellow's patent eclipse glazing. The porch and front landing are laid in marble terazzo, and the wall of porch is decorated with a beautifully-tiled panel; Messrs. Maw & Co. supplied these tiles. The steelwork was provided by Messrs. Redpath, Brown, & Co. The plumbing work was carried out by Mr. William Curran, and the electric lighting was installed by Mr. J. Wardell Shamold. The contract was entrusted to the firm of Messrs. H. & J. Martin, Ltd., and has been executed from the plans of Mr. R. Steven Boag, architect.

TRADE NEWS.

A NEW school has been erected at Pinner for the use particularly of the sons of commercial travellers. The walls are of brick with dressings of Portland stone and Doulting stone, all supplied by the Ham Hill and Doulting Stone Company, Ltd., from their own quarries. The architect was Mr. H. O. Cresswell, of London.

Messrs. Mark Fawcett & Co. have supplied the fire-resisting floors for the new ward at the Royal Portsmouth Hospital, which is to be opened early in the coming year.

Large shops and offices are being erected at Nos. 9 and 10, Marble-arch, London, W. They are constructed of brick with Portland stone facings, supplied by the Ham Hill and Doulting Stone Company from their own quarries, Doulting. The architect is Mr. F. W. Foster, of London.

Stone from the Chelynch beds has been supplied by the same firm for a new porch and other additions to the parish church of Ewell, Surrey (Messrs. Whitfield & Thomas, architects).

The Improved Wood Pavement Company, Ltd., are now removing the asphalt paving in King William-street, City, and putting down creosoted deal blocks.

A large clock has just been erected in the parish church of Dorrington, near Salisbury, by Messrs. John Smith & Sons, of Derby. It shows time on two large dials, and strikes the hours upon the largest bell of the peal. It has been made generally to the designs of the late Lord Grimthorpe, and the makers guarantee it to keep time with great accuracy.

Sanitary and Engineering News.

SANITATION IN THE WESTHAMPNETT DISTRICT.

A report has been made to the Local Government Board on the sanitary condition of the district under the Westhampnett Rural Council, by Dr. F. St. George Mivart, who has made a special tour of the area under the Council's jurisdiction, at the request of the Local Government Board. The Inspector states that while the present conditions are allowed to persist in the central and southern parts of the district, menace of an outbreak of water-borne disease can never be absent. He admits that in trying to improve the water supply the Council have to face a difficult problem, and says that much could be done without great expenditure to provide small local supplies, and that more systematic use should be made of carefully-stored rain-water. He declares that twenty-nine out of thirty-six parishes in the district have no sewerage of any kind whatever; that there is no public scavenging in the district; that the majority of the dairies and cowsheds were in an unsatisfactory condition; that the paving of slaughter-houses was often found defective, as also were the drainage arrangements; but that the condition of bakehouses seemed fairly good. Under a separate heading of sanitary administration the Inspector quotes a case in support of his statement, that the action of the Council seems occasionally lacking in firmness and decision, the illustration being that of a case in which it was reported on June 28, 1907, that seven houses were without proper accommodation, and that apparently nothing practical had been done in the matter by February 21, 1908. Commenting on this, he says a better way of discouraging an inspector of nuisances in the execution of his duty could not be devised, or of encouraging owners to disregard his verbal injunctions, which might often in ordinary circumstances suffice without further steps to secure the abatement of nuisances and provision of sanitary requirements.

SEWERAGE SCHEME IN THE PEAK DISTRICT.

The local authorities, whose areas converge at the Whaley Bridge end of the Peak district, have decided finally upon a scheme of sewerage for the whole, or portions, of some half-dozen townships. It is estimated that the total cost will be about 20,000*l.*

Appointment.

WELSH NATIONAL MUSEUM, CARDIFF.

Mr. William Evans Hoyle, M.A., D.Sc., M.R.C.S., who has been Director of the Manchester Museum during a period of nearly twenty years, has been appointed, as from next March, Director of the Cardiff Museum with a salary of 700*l.* per annum.

Miscellaneous.

THE CHRISTMAS HOLIDAYS.

Next week the *Builder* will be published on Thursday, the 24th inst., and to ensure attention all communications for the Editor must reach our office not later than by first post on Wednesday morning.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.

Mr. Wilfred T. Wire, architect, has removed his offices from 29, Great George-street, Westminster, to 106, Jermyn-street, S.W.

"THE IRISH BUILDER AND ENGINEER."

It is the intention of the proprietors of this paper to bring out a special *édition de luxe* in March, 1909, in celebration of its jubilee. This issue will be produced upon original lines, and will form to a large extent a comprehensive retrospect of the past fifty years. The various articles will comprise such contributions as:—"Fifty Years of Architecture in Ireland"; "Fifty Years of Change in Building Methods and Materials"; "Belfast, 1859-1909"; "Fifty Years of Church Building in Ireland"; "The Care and Study of Irish Antiquities during past Fifty Years," etc.

ANCIENT MONUMENTS OF BOLIVIA.

The Hon. H. Dundas, British Consul at La Paz, in his annual report to the Foreign Office, mentions incidentally that of the ancient inhabitants of Bolivia nothing remains but legends and monuments, the hieroglyphics on which defy the modern scientist. Sufficient to say that the ruins of Tiahuanaco point to very capable and skilful sculptors who flourished perhaps when Baalbec and Luxor were new, and before King Solomon had built his temple. By many it is believed that the Tiahuanaco, as seen to-day, is built on the site of a city 10,000 years old. The town as now beheld must have been deserted suddenly, for it is in an unfinished state. Everything points to some great cataclysm suddenly overwhelming the inhabitants. The stones which have been dug up are as carefully cut as those of the modern stonemason, and the edges appear as clean as if cut yesterday. At Viacha there are also wonderful pre-Inca tombs and monuments, and on the island of Titicaca are the ruins of the Temple of the Sun, the Temples of the Sun's Priestesses, the Inca's Palace, and many other monuments of a wonderful civilisation. There are likewise several prehistoric monuments on the Island of Coati.

PROJECTED NEW PALACE AND HOTELS IN SPAIN.

In a report by Mr. S. P. Cockerell, of the British Embassy, it is remarked that there are no first-class hotels in Madrid, but the best are credited with making enormous profits. In 1907 a scheme was studied by a British firm, in conjunction with two well-known Spanish financiers, for building a first-class hotel on a site—the property of the two Spanish parties—in the proximity of the Prado. The combination has now undergone some modification. It is also rumoured that the Wagons Lits Company intend to build hotels in Madrid and Barcelona. Great hopes are inspired by the prospect of a royal summer palace being built on Cortegada Island in Arosa Bay. The few inhabitants of the small island close up against the Villagarcia-Carril shore have been bought out by the organisers of the idea with the help of public subscriptions in the district, and the island has been presented to the King. The originator and negotiator of the scheme is a large proprietor and contractor at Villagarcia. No doubt, in the next few years important building schemes, besides those of the palace itself, will have to be carried out, if Villagarcia and Carril are by any means to accommodate the summer visitors from Madrid, who up to now have year by year followed the Court up to San Sebastian; for, in fact, these quiet little places are to be suddenly transformed into fashionable resorts.

MONUMENT TO THE NATIONAL CONVENTION, PARIS.

The "Convention Nationale," as all our readers may not remember, was the revolutionary Government in France from September, 1792, to October, 1795, which was responsible for the execution of Louis XVI. and for many other atrocities, but which also, strange to say, has the credit of having created modern education in France, founded the Ecole Polytechnique, and reorganised the army; and a great monument is to be erected to it in the Tuileries gardens, the model of which has just been completed by M. Sicard, the sculptor. It shows, in the centre of a large platform, a figure of the Republic standing, leaning on a lictor's *fasces*. On each side of this are figures, one representing a legislator, the other a workman with one hand on a plough-handle, the other holding an olive-branch. Below this principal group is, on one side, a winged figure of Victory hovering over a group of soldiers, on the other side a group of "Conventionnels" raising their hands to take the oath to the Republic. The monument, which will be entirely in stone, is to be erected at the angle of the Rue des Tuileries and the Rue de Rivoli.

THE HAYWARD BUILDING IN THE SAN FRANCISCO FIRE.

A pamphlet issued by the Granite Silicon Plaster Company contains some interesting information obtained from Messrs. Meyers & Ward, architects, San Francisco, relative to the Hayward Building, a steel-cage structure on reinforced-concrete piers and cantilever foundations. Owing to the care taken in the design of the foundations generally it is said that the earthquake damage did not exceed 100*l.*, and consisted chiefly in the loosening of marble wainscoting in the corridors. The floor panels consist of concrete reinforced with expanded metal, the beams being protected by concrete similarly reinforced and plastered with cement mortar containing a liberal quantity of asbestos fibre. Beneath the beams were hung suspended ceilings formed of expanded metal and American hard plaster (said to be made from the same formula as the granite silicon plaster). The interior columns were encased in asbestos mortar on expanded metal, secured by suitable studs, and were lathed and plastered with finishing coats of American hard plaster, which was also used in the various interior partitions. The exterior walls are of brick faced with sandstone on the street fronts. The chief damage by fire was on the lower four stories, the fire starting in every case after the glass of the windows broke owing to extreme heat. That the fire did not spread entirely through the building is attributed to the fact that no exposed woodwork existed either in the floors or elsewhere. The outer windows were the vulnerable points, and it is possible that if they had been fitted with metal frames and armoured glass the building might have escaped any serious injury. A photographic view printed as the frontispiece to the pamphlet shows that so far as concerned its main structural features the building remained absolutely intact.

GIFTS TO THE BRITISH MUSEUM.

It is announced that, through the munificence of a well-known amateur, Canon Greenwell's fine collection of domestic and other implements of the Bronze Age will shortly be presented to the Museum. They consist of specimens gathered in Great Britain, Asia, and the Continent of Europe, and will form a most valuable addition to the similar objects, found for the most part in British barrows, which Canon Greenwell has already given to the national collection. Messrs. Yamanaka & Co., of London and Japan, have presented two Chinese bronze images of demi-gods which differ somewhat from the general type. The larger of the two seated figures is 8 ft. in height, richly dressed, and with folded hands, in a chair of state; the metal-work of the images has coloured inlay. In the central saloon have been arranged some examples of

the Bronze Age, together with a founder's scrap-heap, some ornaments and tools from South Germany and the lake dwellings of Switzerland, and specimens, given by Sir John Brunner, M.P., and Sir Henry Howorth, of German pottery from Hallstadt, in Upper Austria, and from graves in Sigmaringen, illustrative of the early Iron Age and perhaps an earlier period. To the gold ornaments has been added a silver Susanian dish, from Teheran, having on the inside a hunting scene, and a relief fashioned by means of metal plates turned downwards at their edges, and showing Sapor II., of the IVth century, killing a deer.

BUNHILL-FIELDS BURIAL-GROUND.

The Finsbury Borough Council have made representations to the Corporation of London with a view to the improvement of Bunhill-fields Burial-ground. What Southey called the Dissenters' *Campo Santo*, which covers, with the old City burial-place, an area of 7 acres, and was closed against interments in 1852, belongs to the Corporation, who planted and prepared it for public resort, at an outlay of 3,000*l*., and opened it on October 14, 1869, at the instance of the Metropolitan Public Gardens Association. The register of burials for 1787-1852, containing more than 120,000 names, is preserved in twenty-seven volumes in Somerset House. Twenty years ago, the ground having been raised 4 ft., and more in places, there were standing 6,000 tombstones. An obelisk was set over De Foe's grave in 1870; Bunyan's tomb was restored in 1862. In a vault were laid the remains of several members of Richard Cromwell's family; in 1869 was found, 7 ft. below the soil, the tomb of Henry Cromwell, grandson of the Protector. There, too, were buried Dr. Thomas Goodwin, President of Magdalen College, Oxford, and Oliver Cromwell's minister (1680); Dr. John Owen, Dean of Christ Church, Oxford, *temp.* the Commonwealth; General Fleetwood; George Whitehead; Susannah, mother of the two Wesleys; Dr. Watts; Joseph Ritson, the antiquary; Dr. Richard Price; William Shrubsole, reputed composer of the hymn-tune "Miles's Lane" (1806), and his pupil Benjamin Jacob; Thomas Stothard, R.A.; and William Blake. At one time known as "Tyndal's Burying-ground," the cemetery derives its name from "Bonhill field"—so plotted as parcel of the manor of Finsbury Farm in the XVIth century—set apart by the Corporation for burials during the Great Plague, and by some identified with the plague-pit so graphically described by De Foe. The ground is often confused with the Quakers' graveyard on the opposite side of Bunhill-row, at the corner of Roscoe-street, laid out in 1881, where are the graves of Daniel Quare, clock-maker, *temp.* Anne, and of George Fox, 1690, marked with a modern headstone, the only stone therein when we last saw it.

OPEN SPACES AND RECREATION GROUNDS.

A large plot of land has been committed, at a peppercorn rent, to the Vicar of St. Barnabas, Holloway, by Sir John Dickson-Poynder, M.P., and will be laid out for recreation.——The Metropolitan Public Gardens Association are making efforts to preserve the enclosures—now offered for sale—of St. Peter's-square, Hammersmith, Princes-square, Cable-street, and Barnsbury-square, Islington.——An offer has been made of the freehold of Finsbury-square, that it may be opened as a public garden.——A scheme is projected to purchase, by means of a loan of 165,000*l*., by the Local Government Board, to the Watford Urban District Council, 216 acres of Cassiobury Park from the Earl of Essex, and the levying of a 1d. rate for upkeep of the land as public walks and pleasure grounds.——A body of subscribers have presented to Oxford University a parcel of 30 acres, abutting on the south-west side of Shotover-plain, with access by a bridle-path which will be opened through the surrounding West Hill Farm with the concurrence of the owner, conditionally that the land, whilst belonging to the University, shall be devoted to public use and enjoyment in perpetuity.——Birkenhead Corporation have acquired for 10,500*l*., inclusively of 4,375*l*., raised by subscriptions, an area of 22 acres at Bidston-hill (the Edmund Taylor Memorial), where 90 acres of a beautiful open space have already been secured by them at an outlay of 31,000*l*., whereof the public contributed 16,500*l*.——Lord Villiers has given to Aberavon Corporation a recreation ground, 8 acres, near Aberavon Beach.——Miss Haslam, of Ashton-on-Ribble, has given to Preston Corporation a park of 65 acres as a memorial to her father, the late Mr. John Haslam.

RECENT BOOK AND ART SALES.

Messrs. Sotheby have sold in their auction-rooms a copy of A. Heppelwhite's "Cabinet Maker and Upholsterer's Guide," 1789, for 25*l*.; C. Schütz and J. Ziegler's "Collection de Vues de la Ville de Vienne," etc., Vienna, 1785, thirty-six plates—160*l*. (Sabin), and L. Janscha's "Collection de Cinquante Vues du Rhin," Vienna, 1798, fifty coloured plates—84*l*. (Quaritch). Amongst modern pictures and drawings sold at Christie's last week were Erskine Nicol's "Irish Market Women," 1859—40 guineas (Lister), and "Auld Lang Syne," 1875—220 guineas (Pollard); Anadell's "Ploughing in Spain: Noonday Rest," 1857—92 guineas (Carroll); G. Cole's "A Cornfield, Surrey," 1874—130 guineas (Vicars); S. A. Forbes's "The Smithy," 1895—100 guineas (Baldwin); Vicat Cole's "Harvest Time," 1860—195 guineas (Frost and Reed); and T. S. Cooper's "A Sunny Afternoon"—150 guineas (Misell). The third and most valuable portion of the late Mr. M. Colnaghi's pictures, consisting of 129 lots, realised nearly 9,000*l*. The subjects comprised a girl's portrait by Greuze—190 guineas (Pawsey); Canaletto's (or rather his nephew Bernardo Bellotto's) English Church and the Pont Auguste, Dresden—440 guineas (Pawsey); portrait of Helen Fourment, on a panel, by Rubens—185 guineas (Wallis); Gainsborough's "Crossing the Ford"—240 guineas (Bowles); Dalou's group of a Breton fisherwoman and child, 37 in. high—155 guineas (Joubert); a moonlight river scene by A. Van der Neer—900 guineas (Sulleys); Lely's "Duchess of Cleveland"—300 guineas (Wallis); Raeburn's portraits of Mrs. Mercer, *née* Wilson—170 guineas (Wallis), and Henry Viscount Melville, with the engraving by G. Dawe—520 guineas (Ichenhauser); "The Court of Dionysius," by Rubens—280 guineas (Hardwicke); an interior with figures by Teniers—125 guineas (Shepherd); "The Fish Seller," by F. Hals—120 guineas (Pawsey); "The Bleaching Ground at Haarlem," by J. Ruysdael—196 guineas (Permain); "The Arab School," by Professor L. C. Müller—320 guineas (Wallis); Sir E. Landseer's "Jocko," 1828—200 guineas (Sampson); two portraits of himself, by Rembrandt—185 guineas (Pawsey), and 440 guineas (Allen); and "The Garden Party," by A. Watteau—250 guineas (Pawsey). A small portrait, by G. Terburg, of a man in black was sold for 90 guineas (Cox).

ARCHITECTURAL COPYRIGHT.

On November 13 the Conference of Berlin ended its labours on the question of "Literary and Artistic Ownership." Absolute protection is granted to works of literature, music, drawing, architecture, photography, and choreography. The inclusion of applied arts was opposed by the English delegates. The duration of the copyright has been extended from thirty to fifty years "post mortem auctoris," with certain reservations.

TANGYE MEMORIAL, BIRMINGHAM.

The memorial to commemorate the services to Birmingham of Sir Richard and Mr. George Tangye has been affixed to the wall on the right-hand side of the entrance to the Art Gallery, and consists of a bronze plaque showing life-size portrait busts of the brothers facing one another, and is mounted on green marble. The memorial was designed and executed by Professor Colton, A.R.A., Professor of Sculpture to the Royal Academy.

CITY GUILDS TRAINING SCHOOL.

On Thursday evening last week Sir Guilford Molesworth distributed, at the hall of the Carpenters' Company, the awards won during the past year by pupils at the Trades Training School conducted by the City Guilds of the Carpenters, Joiners, Painter-Stainers, Plasterers, Tylers and Bricklayers, and Wheelwrights, and also the certificates, medals, etc., gained at the Carpenters' Company's examinations in sanitary building construction and in carpentry, and in the Architectural and Building Construction Evening Classes at King's College. Sir Guilford Molesworth, in the course of a speech, said that one of the worst evils of the day was the nothing-to-do complaint. No portion of his life had been more happy than the time when he was working at the bench, with the struggles of life before him. The present system of education was defective in that it sacrificed technical to scholastic training. Every man ought to learn a trade, but unfortunately the old system of apprenticeship was dying out, with nothing to take its place, and for that reason it was impossible to overrate the importance of a trades training school such as that of the associated Companies. He congratulated the Master and Wardens of the Carpenters' Company on the very great success of the school, the instructors upon the splendid work achieved, and the scholars upon the sound sense and strength of mind they displayed in availing themselves of the valuable opportunities offered them.

BRISTOL UNIVERSITY COLLEGE.

For an extension of the present buildings the authorities of University College have bought the adjoining premises, erected in 1838 in Park-street, of the Blind Asylum, which will be removed to Westbury-on-Trym.

CAMBRIDGE UNIVERSITY.

Some interesting pictures have been lent for exhibition in the Fitzwilliam Museum, of which Mr. S. C. Cockerell has lately been appointed director. The collection comprises Lord Carew's early Flemish painting of the "Adoration of the Magi," with examples of Hogarth, Gainsborough, Sir Joshua Reynolds, Romney, Sir John Millais, Rossetti, Andrea del Sarto, Botticelli, and Tommaso di Stefano. Mr. F. W. Green, of Jesus College, has been appointed assistant-director of the Museum.

Law Reports.

CONTRACTOR'S CLAIM AGAINST CORPORATION.

THE case of Bell's Executors *v.* the Corporation of Bridlington came before a Divisional Court of King's Bench, consisting of Justices Bigham and Walton, on the 15th inst., on the plaintiffs' appeal from a decision of Mr. Muir MacKenzie, the Official Referee. (The case was reported in the *Builder* of July 11 and 25 last.)

The action was brought by the plaintiffs, the executors of the late Mr. George Bell, a contractor, to recover from the defendants about 2,000*l*., the balance of an account for work and labour done and materials supplied, and for hire and use and waste of plant and harbour rent between June 18, 1904, and August 31, 1907, after crediting sums paid from time to time by the defendants amounting to 465*l*. 19s. The defendants, in effect, pleaded that the work, material, and other things done for and supplied to them by the plaintiffs were done and supplied under a contract in writing and under seal dated May 5, 1904, between the late Mr. George Bell and the Corporation, and that they had paid to the late Mr. Bell, or to the plaintiffs, as his executors, all sums which at the date of the writ had become payable under that contract, and were not liable for anything more. The work which the late Mr. Bell, and after his death the plaintiffs, as his executors, were employed to do by the defendants consisted of taking up fifty-one iron pipes, part of the new sewage outfall from the town laid on the shore and running into the sea, and relaying them on piles driven into the sand or soil. In 1904 the Corporation invited contractors to tender for the work of driving a number of piles at the outfall, taking up and relaying these fifty-one iron pipes, and making the necessary connexion with the outfall. In April, 1904, for the purpose of enabling contractors to tender for the work, specifications and plans were prepared, and the plaintiffs, or, rather, Mr. Bell, by a tender dated April 25, offered to execute the work according to the plans, specifications, and conditions for 720*l*. That tender was accepted, and a contract, dated May 5, was subsequently signed and sealed by the Corporation. The work under this contract was commenced about June 21, 1904, and had been proceeding more or less ever since. About a year after the work had begun, the contractor sent to the Corporation a statement of account of charges for work done and materials supplied, and formulated a claim that, in the events which had happened, and having regard to the order given him by the Borough Engineer and which he had carried out, he was entitled to be paid on the basis of ascertaining the cost and value of his work for labour and plant, and for the cost of materials used in the work. That claim the Corporation refused to recognise, contending that the plaintiffs were only entitled to be paid the lump sum provided for by the contract, together with the value of any extra work ordered by the engineer during the progress of the contract, to be measured and valued at the contract price. The legal grounds on which the plaintiffs' claim was based were either that the work ordered or which the contractor carried out was so essentially different from that described in the specification and plans that the contractor was entitled to recover the value of his work and materials, either on a new contract to be implied from the ordering, execution, and acceptance of the altered work, or in the alternative as extra and altered work ordered and executed under paragraph 2 of the conditions in the specifications. The Official Referee decided that there was no such alteration of the work by the Corporation or done by the contractor as entitled him to maintain his claim, his contract being to relay the pipes from a particular place on the shore. He further decided that there was no alteration in the work as described in the tender, plan, and specification, and that he was not entitled to claim payment on the basis of a *quantum meruit*, and that, even assuming such altered

work was ordered, the Corporation were not liable to pay for it on the ground that sect. 174 of the Public Health Act, 1875, precluded the contractor from maintaining any claim on such a contract, it being not under seal; and, secondly, because the Borough Engineer had no authority to order such a complete deviation. Again, if the plaintiffs were right, and the variation of line came within sect. 2 of the specification, he (the Official Referee) decided that this did not entitled the contractor to disregard the lump sum provided for by the contract and to say that he was entitled to be paid as for day work. The contractor, he said, had been paid for the extra expense caused by the increased length of some of the pipes a sum of money which he (the Official Referee) found upon the evidence to be sufficient, and he therefore gave judgment for the defendants with costs. Hence the present appeal of the plaintiffs.

Mr. Montague Shearman, K.C., on behalf of the appellants, took the point that the plan on which the tender was made was not accurate, and that the work had been varied in form and dimension under an order of the Borough Engineer. The piles had been lengthened from about 8 ft. to 12 ft., but the Official Referee had found that what had been paid to the contractor was sufficient to cover the cost of the extra work.

Mr. C. A. Russell, K.C., having supported the judgment of the learned Official Referee on behalf of the respondents, their lordships reserved judgment.

POWERS OF DISTRICT COUNCIL UNDER BY-LAWS.

THE case of Hanrahan *v.* the Leigh-on-Sea Urban District Council came before a Divisional Court of King's Bench, consisting of Justices Bigham and Walton, on the 10th inst., on the plaintiff's appeal from a decision of the County Court judge of Southend.

The facts of the case were as follows:—The plaintiff bought an old railway carriage, and for the benefit of a consumptive daughter he converted it into a small dwelling-house by cutting a small hole in a partition and erecting a portable stove, a shed, and suitable offices. Plaintiff submitted no plans to the urban authority, and in consequence a summons was issued against him, upon which the plaintiff was fined by the magistrates. Subsequently, in March of the present year, a notice was served upon the plaintiff at the instance of the District Council requiring him to show cause why the building in question should not be demolished, and in the result the District Surveyor, accompanied by the local police sergeant and three men, appeared upon the scene, and pulled down the whole of the structure and carted the remains away. The plaintiff thereupon brought the present action in the County Court against the District Council for damages for their alleged illegal act in demolishing the structure, but the learned County Court judge, holding that the defendants were justified in what they did, entered judgment for them. Hence the present appeal of the plaintiff.

Mr. Radcliffe, K.C., and Mr. Thornton Lawes appeared for the appellant; and Mr. Herbert Smith for the respondents.

During the course of Mr. Radcliffe's address on behalf of the appellant Mr. Justice Bigham said he supposed the local authority were entitled in the circumstances to demolish the structure in question.

Mr. Radcliffe: I think I can successfully show you that they were not entitled to do so. We say it is a grievous excess of their powers under the by-laws.

Mr. Justice Bigham: Are there many of these railway-carriage dwelling-houses in this district?

Mr. Radcliffe: I believe there are a good many in that part of the world.

The learned counsel, while admitting that the Council might have the right to remove all the new work and additions to the structure, contended that they were not entitled to demolish the whole structure. The plaintiff was informed by the District Council that the building was a nuisance and would not be allowed to stand, and the plaintiff retaliated by saying that it was his house, and that he would not leave it under any circumstances.

Mr. Smith, on behalf of the respondents, said that the plaintiff had erected a "new building" within the meaning of the by-laws of the Council, which were framed in accordance with the provisions of the Public Health Act, and therefore the respondents, having given no permission for its construction, were entitled to have it pulled down.

Mr. Justice Walton, in delivering the judgment of the Court, said that he had been very much impressed by the almost extraordinary consequences which were possible if they were to hold, that in a case like the present, the local authority had power, where a building had been converted by some small and trivial alterations into a dwelling-house, to pull the whole building down. It was obviously a very large power to give. But as they (their lordships) read the by-laws, they were of opinion that the decision of the County Court judge should be upheld and the appeal dismissed.

Upon the application of Mr. Radcliffe leave to appeal was granted.

WEST RIDING COUNTY COUNCIL AND A QUANTITY SURVEYOR.

ON the 9th inst. a case was heard at the Wakefield City Court, in which Mr. Abraham Hart, a Wakefield architect and surveyor, was charged at the instance of the West Riding County Council with an offence under the Prevention of Corruption Act. The allegation was that he did unlawfully and knowingly use a certain receipt for 31*l.* 14s. 6d., which receipt was false and intended to mislead.

Mr. F. M. Farmer prosecuted for the County Council, and Mr. T. R. D. Wright, barrister, appeared for the defendant.

Mr. Hart was engaged as quantity surveyor in connexion with alterations and additions to a school at Crofton proposed to be made by the West Riding Education Committee, his remuneration being fixed at 1½ per cent. on the contract price. In the course of his duties he had the quantities lithographed, and for this work he sent in a bill to the County Council for 31*l.* 14s. 6d. Exception was taken to this charge as excessive, and the defendant produced a receipt for the 31*l.* 14s. 6d. from the lithographers, and, it was alleged, stated that he had paid that sum to the firm. Afterwards, however, he admitted that he had received a discount of 25 per cent., and had, in fact, only paid 23*l.* 15s. 11d.

In his evidence the West Riding Surveyor asserted that prior to this case he had not known that lithographers' charges were generally subject to discount, and if discount was given it ought to go to the client, and not to the quantity surveyor.

The defendant denied that he had had any intention to mislead, and said that from the first, when the amount of the account was questioned, he openly stated that he received a discount off the list prices. This he considered he was entitled to, not really as discount, but as payment for services rendered in examining the proofs and other work.

The Bench held that there was not sufficient evidence to justify a conviction, and dismissed the case.—*Yorkshire Observer.*

CLAIM BY ARCHITECTS FOR PREPARING PLANS.

AT Walsall County Court, on the 10th inst., before Judge Howard Smith and a special jury, Messrs. Hickton & Farmer, architects, of Walsall, claimed 83*l.* 5s. from Mary Ann Fox, of the Bridge Inn, Park Brook, Wolverhampton-road, Walsall, for preparing plans in connexion with the erection of eleven cottages and a shop in Wolverhampton-road. Mr. C. A. Loxton appeared for the plaintiffs, and Mr. Graham Millward (instructed by Messrs. Addison & Cooper) appeared for the defendant. It was stated that the plaintiffs were approached by Mrs. Fox's brother respecting the preparation of the plans in question, and it was agreed that 2½ per cent. should be paid for preparing the plans and superintending the erection of the building. This, it was explained, would not include quantities. The plaintiffs were instructed to get the plans ready, but Mr. Fox then said the amount was more than his sister was prepared to spend. Various matters were struck out of the plans and tenders obtained, but it was found that these were too high, the lowest being 2,240*l.*, and subsequently plaintiffs received an intimation that the work was not to go on. Plaintiffs sent in their bill, which was made up of 40*l.* 10s. for plans, and 32*l.* 10s. quantities, also 5*l.* 5s. for making reductions and going through the specifications. Defendant, however, denied that these charges were as arranged, and disputed the charges as to quantities, and offered to pay 35*l.* Subsequently it was found that defendant was having the work done by a Mr. Harris, who was one of the builders who originally tendered for the work, and it was urged by plaintiffs that he was doing the work practically on the lines laid down in their own plans.

Mr. Millward urged that the evidence of Mr. Fox and his sister (who was present at the interview with the architect), that the terms were 1½ per cent., was weightier than Mr. Hickton's. Mr. Hickton was undoubtedly trying to get business, and was told that other work might follow this order. His client was willing to pay 32*l.* 10s., which was the amount represented by 1½ per cent.

Mr. Loxton argued that Mr. Hickton's arrangement for 2½ per cent. was confirmed by an entry, and also by an interview with his partner, Mr. Farmer, and that immediately defendant refused to pay for quantities Mr. Hickton wrote that it was too late to repudiate the arrangement. If there had been a genuine misunderstanding and the judge advised, under these circumstances, that the jury should find for what they believed to be a reasonable sum, he (Mr. Loxton) urged that it should certainly be enough to cover plaintiffs' bill, because they would have been justified in asking as much as 5 per cent. for this work.

The judge said it was all a question of fact and not of law. It was a matter for the jury to decide. He also expressed the opinion that it would have been better if the terms had been put down in writing at the time of the interview with Mr. Hickton.

The jury gave a verdict for plaintiffs for 50*l.* and costs, stating that they found that there had been no contract, but awarded the 50*l.* for work done.—*Birmingham Gazette and Express.*

Patents of the Week.

APPLICATIONS PUBLISHED.*

26,266 of 1907.—G. MAZZOLINI: *Apparatus for Opening, Closing, and Locking Doors or the like.*

This relates to a device for simultaneously closing or opening from a distance any number of doors, hatchways, or the like by operating a pneumatic or electric controlling gear, characterised by a latch or bolt being operated by the bevelled end of a piston rod driven pneumatically or electrically after the door has been pushed to by a spring connected to the piston rod, the said latch or bolt being pushed into the closing position by the end of the piston rod, and by the end of a slot of the spring striking a projection of the latch, a projection of the piston rod engaging with a pivoted hook of the latch guided upwards by the bevelled portion of the piston rod end and being held in the said engaged position by a bracket, whilst at the opening of the door, owing to the piston rod being withdrawn by the pneumatic or electric gear, the latch is withdrawn from the closing position by the projection of the piston rod, and the hook of the latch, being thereupon withdrawn from its supporting bracket, falls down by gravity and releases the projection of the piston rod, and therefore the latter itself, so that during the further return movement of the piston rod the end of the slot of the spring plate connected to the piston rod pulls the projection of the latch, and thus opens the door outwards.

26,710 of 1907.—C. BOURFEIND: *Closet-seat Guards.*

This relates to closet-seat guards, consisting of sheets of paper, characterised thereby that disinfected sheets of paper, on which advertisements are printed, are attached to each other, and the bottommost sheet is attached to the seat by means of two steel leaf springs. At the front all the sheets are held together and to the seat by an angular piece of steel at the back of the seat; the separate sheets are perforated in front of the angular piece of steel, so that they can be more easily torn off, and stuck together near the front of the seat to prevent derangement.

27,611 of 1907.—T. O. SUMMERS, O. J. WOOTTON, T. HILL, and W. H. GREEN: *Electrically-controlled Locks and Latches.*

This relates to locks and latches adapted to be electrically controlled, wherein an electro-magnet is excited to withdraw a catch which retains the bolt in its fastened position, and immediately following such withdrawal a guard is automatically interposed to prevent the catch re-engaging with the bolt, and therefore the current may be switched off, leaving the bolt free. To permit of the catch re-engaging with the bolt a second magnet is excited, which withdraws the guard and allows the catch to automatically re-engage with the bolt when the bolt is in its outward position, the catch itself preventing the guard from returning, and therefore the current may be switched off after withdrawing the guard, and an electro-magnet is excited to withdraw a catch from engagement with the bolt and allow the bolt to automatically move into its fastened position, and therefore immediately thereafter the current may be cut off. To unfasten the bolt another magnet is excited to draw the bolt in the catch, then automatically engaging with the bolt to hold it in, and therefore in such engagement the current may be cut off, and if, as is preferred, the catch is also utilised to automatically engage with the bolt to fasten it out, this catch is again moved by its magnet before the magnet is excited which draws in

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

PATENTS,—*Continued on page 692.*

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvi.; Auction Sales, —.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

* FERRO-CONCRETE.—Designs for the architectural treatment of a building constructed in ferro-concrete. Drawings on view. For further particulars see advertisements on pages iv. and xvii.

DECEMBER 19.—**Preston (Lancs).**—ADDITIONS TO ASYLUM.—The Committee of Visitors for the County Asylum at Whittingham, near Preston, invite designs, etc., for a new annexe for about 700 pauper lunatics. Conditions and plan of site may be obtained on payment of a deposit fee of 5*l*. 5*s*. from Mr. Leonard Cotman, Law Clerk to the Committee of Visitors for Whittingham Asylum, 8, Lune-street, Preston. See advertisement in our issue of October 10 for further particulars.

DECEMBER 31.—**Cornwall.**—COUNTY OFFICES.—The Cornwall C.C. invite competitive designs for the above. Premiums of 50*l*., 20*l*., and 10*l*.; premium for successful design to merge into architect's commission. Particulars on receipt of deposit of 1*l*. 1*s*. to be obtained from Mr. Christopher L. Cowlard, Clerk to the County Council, Bodmin. See advertisement in our issue of October 3 for further particulars.

* NO DATE.—**Middlesbrough.**—LIBRARY.—The Middlesbrough Free Library Committee invite designs for proposed new library in Dunning-road and Grange-road East, Middlesbrough. See advertisement in this issue for further particulars.

Contracts.

BUILDING.

DECEMBER 21.—**Aberdeen.**—ADDITIONS, ETC., TO HOSPITAL.—Mason, carpenter, plumber, plasterer, slater, painter and glazier, bellhanger, iron, and heating engineer works of additions and alterations to be made to the City Hospital, Aberdeen, for the Town Council. Plans, etc., may be seen, and schedules of quantities obtained, at the office of the City Architect, 224, Union-street, Aberdeen.

DECEMBER 21-JANUARY 20.—**Auckland.**—ALTERATIONS AND ADDITIONS TO THE UNION WORKHOUSE.—The Board of Guardians invite sole or separate tenders for the several works to be executed in connexion with alterations and additions to the Workhouse. Names and addresses to Mr. F. H. Livesay, architect, Newgate-street, Bishop Auckland, accompanied by a cheque for 5*l*.

DECEMBER 21.—**Cononley.**—SCHOOL WORKS.—West Riding C.C. Education Committee invite whole or separate tenders in connexion with Cononley new School, near Keighley. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 21.—**Ecclesfield.**—SCHOOL REPAIRS.—West Riding C.C. Education Committee invite whole or separate tenders for repairs and improvements at High Green Provided School, Ecclesfield. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 21.—**Pinghall.**—CHAPEL.—Erection of new chapel at Pinghall. Plans, etc., may be had of Mr. R. Metcalfe, Spruce Gill, Pinghall.

DECEMBER 21.—**Hull.**—HEATING VAULT.—Hull Education Committee invite tenders for the erection of a heating vault, etc., at South Myton Council School (Adelaide-street). Plans, etc., may be seen, and a form of tender obtained, on application at the Education Offices, Albion-street, Hull.

DECEMBER 21.—**Langsett.**—SCHOOL WORKS.—West Riding C.C. Education Committee invite tenders for alterations and additions, Langsett Provided School. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 21.—**Leith.**—SHOPS.—The Directors of the Caledonian Railway Company invite tenders for the works to be executed in the construction of shops at the corner of Leith-walk and Manderston-street. Drawings may be seen at the office of the Company's Engineer, Buchanan-street Station, Glasgow, where copies of the specification, etc., may be obtained on payment of 2*l*. 2*s*.

DECEMBER 21.—**Saddleworth.**—WALL.—The West Riding Highways Committee invite tenders for the pulling down and rebuilding of about 700 lin. yds. of retaining and fence wall on the Greenfield and Shepley-lane head main road at Bids o' Jacks, within the Saddleworth Urban District. General conditions, specifications, etc., may be obtained from Mr. F. G. Carpenter, West Riding Surveyor, County Hall, Wakefield. A deposit of 1*l*. will be required. Cheques, etc., must be sent to the West Riding Treasurer, County Hall, Wakefield.

DECEMBER 21.—**Salterforth.**—SCHOOL WORKS.—The West Riding Education Committee invite whole or separate tenders for Salterforth new School, near Keighley. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 21.—**Thorne.**—SCHOOL WORKS.—The West Riding Education Committee invite tenders for alterations and improvements, Thorne Provided School. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 21.—**Widnes.**—REPAIRS.—The Widnes Education Committee invite tenders for repairs, etc., at the various Council and non-provided schools. Specifications may be seen any day at the Education Office, Town Hall, Widnes.

DECEMBER 21.—**Worsborough Dale.**—SCHOOL.—The West Riding Education Committee invite tenders for Worsborough Dale new School, near Barnsley. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 22.—**Burnley.**—WALLS.—Lancashire and Yorkshire Railway Directors invite tenders for the widening of the bridge carrying the railway over Cog-lane, and construction of retaining walls adjacent thereto, at Gannow Junction, Burnley. Plans can be seen, and copies of tender, etc., obtained, on application at the Engineer's Office, Hunt's Bank, Manchester.

DECEMBER 22.—**Christchurch.**—INFIRMARY.—The Guardians of the Christchurch Union invite tenders for the erection of an infirmary at their Workhouse, Christchurch. Names to Mr. A. Druitt, Clerk to the Guardians, Christchurch. A deposit of 5*l*.

DECEMBER 22.—**Clifferna.**—HALL.—Erection of Parochial Hall at Clifferna, Stradone, according to plans and specification prepared by Mr. P. J. Brady, architect, Cootehill.

DECEMBER 22.—**Manchester.**—WALL.—Manchester Corporation Improvement and Buildings Committee invite tenders for the taking down and setting back of a dwarf wall and fence at the David Lewis Recreation Ground, Blackley. Specification and form of tender may be obtained on application at the City Surveyor's Office, Town Hall, Manchester, on payment of 2*l*. 2*s*.

DECEMBER 22.—**Portsmouth.**—POLICE-STATION.—Erection of a branch police-station, etc., at the corner of Eastney-road and Essex-road, Milton. On payment of the sum of 2*l*. 2*s*. a lithographed copy of the bill of quantities, etc., can be obtained from Mr. Alexander Hellard, Town Clerk, Town Hall, Portsmouth, and conditions, etc., may be seen, and full information obtained, upon application at the Borough Engineer's Offices at the Town Hall, Portsmouth.

DECEMBER 22.—**Treforest.**—CHAPEL HALL.—Erection of a chapel hall on the Park Estate, Treforest, for the Calvinistic Methodist Connexion. Plans, etc., can be seen at office of Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd.

DECEMBER 23.—**Aberdare.**—RECEIVING HOME.—Erection of a receiving home for children at Aberdare for the Merthyr Tydfil Board of Guardians. Plans, etc., may be seen at the Training School, Trecynon, Aberdare, or at the office of the architect, Mr. Thomas Roderick, Clifton-street, Aberdare, from whom bills of quantities may be obtained.

DECEMBER 23.—**Manchester.**—WALL.—Manchester Corporation Electricity Committee invite tenders for the construction of a retaining wall on the River Medlock at Clayton Vale. Drawing may be seen, and specification, etc., obtained, on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l*. 2*s*. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester."

DECEMBER 29.—**Liverpool.**—ROOFS.—The Corporation invite tenders for taking off and removing roofs over swimming baths, and for the construction of new roofs thereon, at Margaret-street Public Baths. Plans, etc., may be inspected, and quantities obtained, on application to the Engineer and Chief Superintendent, Mr. W. R. Court, at his office, Municipal Offices, Liverpool, on payment of 1*l*. 1*s*.

DECEMBER 29.—**Portsmouth.**—REFUSE DESTRUCTORS.—The Council of the Borough of Portsmouth invite tenders for the supply, erection, testing, and putting to work of two destructors. Printed specifications and forms of tender may be obtained from Mr. Alexander Hellard, Town Clerk, Town Hall, Portsmouth, on payment of a sum of 2*l*. 2*s*. for each contract. Any further information required will be supplied on application at the offices of Messrs. Brumwell & Harris, at 11, Great George-street, Westminster, S.W.

DECEMBER 31-JANUARY 14.—**Healing.**—SCHOOL, ETC.—Lindsey C.C. Education Committee invite tenders for building an elementary school and teacher's house at Healing, in the County of Lincoln. Bills of quantities and form of tender may be had on application to Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln, on payment to them of 2*l*. 2*s*.

DECEMBER 31-JANUARY 14.—**Ingoldmells.**—SCHOOL, ETC.—Lindsey C.C. Education Committee invite tenders for building an elementary school and teacher's house at Ingoldmells, in the County of Lincoln. Bills of quantities, etc., may be had on application to Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln, and on payment to them of 2*l*. 2*s*. The drawings, etc., may be inspected at the offices of the architects.

DECEMBER 31-JANUARY 14.—**Little Coates.**—SCHOOL.—Lindsey C.C. Education Committee invite tenders for building an elementary school at Little Coates, in the County of Lincoln. Bills of quantities, etc., may be had on application to Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln, and on payment to them of 2*l*. 2*s*.

DECEMBER 31.—**Penzance.**—ALTERATIONS, ETC., TO PREMISES.—Stores and other works of alterations and additions to the premises of Messrs. R. V. & H. Davy, 112, Market Jew-street, Penzance. The drawings, etc., may be seen on application to Mr. Oliver Caldwell, F.R.I.B.A., architect, Penzance.

DECEMBER 31.—**Penzance.**—HOUSES.—Two dwelling-houses and shops in Market Jew-street, Penzance, for Mr. John Matthews. The drawings, etc., may be seen, and all further particulars had, on application to Mr. N. C. Whear, jun., architect, Penzance.

* JANUARY 2.—**Petersfield.**—CLASS-ROOM.—The Southampton C.C. invite tenders for new class-room at Petersfield. See advertisement in this issue for further particulars.

JANUARY 4.—**Hereford.**—ALTERATIONS, ETC., TO CLUB.—The Committee of the Hereford Rowing Club invite tenders from Hereford builders for making alterations and additions to their club premises at Wyeside. Plans, etc., can be seen, and form of tender obtained, at office of Mr. Ernest G. Davies, M.S.A., architect, 132, Widemarsh-street, Hereford.

JANUARY 5.—**Little Hulton.**—PREMISES.—Little Hulton Industrial Co-operative Society, Ltd., invite tenders for the loading at Mistley Quay and cartage premises at the junction of Clegg's-lane and Manchester-road, Little Hulton, near Bolton. Quantities and forms of tender may be had from Mr. J. T. Proffitt, architect and surveyor, 9, Longley-road, Walkden. A deposit of 1*l*. will be required for same.

JANUARY 5.—**Stainland.**—HOUSES.—Erection of nine houses at Stainland. Plans, etc., will lay for inspection, and quantities may be obtained, at offices of Messrs. Chas. F. L. Horsfall & Son, architects, Lord-street-chambers, Halifax.

* JANUARY 6.—**Homerton.**—SUBWAY.—The Guardians of the Hackney Union invite tenders for a subway between the new administrative block and pavilion "D" of the Infirmary, High-street, Homerton, N.E. See advertisement in this issue for further particulars.

JANUARY 7.—**Aberystwyth.**—SCHOOL WORKS.—The Cardigan County Education Committee invite estimates for the erection of additional classrooms, manual training room, cookery centre, and other work at Alexandra-road Council School. Names to Mr. George Dickens-Lewis, County Architect, North-parade, Aberystwyth, together with a cheque for 2*l*.

JANUARY 7.—**Lincoln.**—WESTGATE WATER TOWER.—The Lincoln Corporation invite tenders for the construction of a brick tower 106 ft. high to T. W. L. to support a spherical-bottomed steel tank, containing 300,000 gallons of water, and subsidiary works at Westgate, Lincoln. Drawings may be seen, and specification, etc., obtained, at the office of the Engineer, Mr. Neil McK. Barron, Waterworks Engineer, upon payment of the sum of 5*l*. 5*s*.

* JANUARY 7.—**Watford.**—MANUAL INSTRUCTION CENTRE.—The Hertfordshire C.C. Education Committee invite tenders for a new manual instruction centre at the Victoria Senior Boys' School at Watford. See advertisement in this issue for further particulars.

JANUARY 8.—**Salisbury, Wilts.**—WATER TOWER.—Tenders are invited for the construction of a brick-built water tower and tank and works incidental

thereto on the Bishops Down Estate, for the Ecclesiastical Commissioners for England, and their surveyors, Messrs. Cluttons, 5, Great College-street, Westminster Abbey, S.W. Plans, etc., prepared by Messrs. Lemon & Blizard, MM.Inst.C.E., engineers for the works, acting on behalf of Messrs. Cluttons, may be inspected at their Salisbury office, and copies of bill and quantities obtained, on depositing the sum of 2l. 2s.

* JANUARY 6.—**Shinfield, Berks.**—NEW SCHOOL.—The Berkshire Education Committee invite tenders for building new school for 250 scholars. See advertisement in this issue for further particulars.

* JANUARY 18.—**Macclesfield.**—DETACHED BLOCKS.—The Committee of Visitors, Cheshire County Asylum, Parkside, invite tenders for two detached blocks for forty-three patients each, at Parkside Asylum, Macclesfield. See advertisement in this issue for further particulars.

NO DATE. — **Brondecwyn.** — WALLS, ETC.—The Merioneth Education Committee invite tenders for forming playgrounds and building boundary walls at Brondecwyn Council School. The plan, etc., may be obtained on application to the architects, Messrs. Deakin & Howard Jones, Plas Ynys, Borth, R.S.O.

NO DATE.—**Castlerahan.**—COTTAGES.—The R.D.C. invite tenders for the erection of single and double labourers' cottages throughout the District. Plans, etc., prepared by Mr. Michael Grace, jun., Council's Engineer. Tender forms, etc., can be had on application to the Clerk or Engineer. Copies of plan and specification will be supplied on payment of a sum of 5s. Mr. Peter Brady, Clerk of Council, District Council Offices, Oldcastle Workhouse.

NO DATE. — **Leeds.** — ROLLER RINK.—Contractors desiring to tender for the various trades in connexion with a roller skating rink and large hall are invited to send in their names (in writing) to Messrs. Isaac Senior & Son, accountants, East-parade, Leeds.

NO DATE. — **Newcastle-on-Tyne.** — CLUB.—The erection of the new Dunston Excelsior Club. Names to Messrs. White & Stephenson, Grey-street, Newcastle, or to the Secretary of the above club, Dunston.

NO DATE.—**Salisbury.**—ALTERATIONS.—Alterations and additions to 52, Fisherton-street. For further particulars apply Mr. F. E. Hale, Building Material Company, Salisbury.

NO DATE.—**Terrington St. Clement.**—COTTAGE.—The erection of cottage in Hillgate-lane, Terrington St. Clement, for Mr. W. Tuck. Plan, etc., may be seen at offices of Messrs. Walker & Walker, architects and surveyors, 2, Lower Hill-street, Wisbech.

NO DATE.—**Whitchurch.**—STABLING.—Erection of stabling at Hepstay House, Whitchurch. Plans, etc., can be seen of Mr. D. E. Jones, Hepstay House, Whitchurch, Glam.

ENGINEERING, IRON, AND STEEL.

DECEMBER 21.—**New Brighton.**—IRON PONTOON.—Wallasey U.D.C. invite tenders for the construction, etc., of one iron pontoon for New Brighton Ferry Landing-stage. Further particulars, etc., may be obtained at the Ferry Manager's Office, Seacombe Ferry, where drawings of the proposed pontoon may be inspected.

DECEMBER 23. — **Dundee.** — WHARF WORKS.—The Trustees of the Harbour of Dundee invite tenders for the construction in Hennebique's ferro-concrete of No. 3 section of the Eastern Wharf Reconstruction (about 260 lin. ft.). The general plans, etc., may be seen or obtained at the office of Mr. J. Hannay Thompson, M.Inst.C.E., Harbour Engineer, Harbour Engineer's Office, Dundee. The contractor will be required to deposit a fee of 5l. 5s. before being allowed to inspect or receive these documents.

DECEMBER 23. — **Manchester.** — ELECTRIC BELLS.—Manchester Corporation invite tenders for the wiring and complete installation of electric bells and telephones at the Bradford Baths. Drawings may be seen, and specifications obtained, at the office of the City Architect, Town Hall, upon payment of 2l. 2s. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester."

DECEMBER 23.—**Manchester.**—ELECTRIC LIGHTING.—Manchester Corporation invite tenders for the wiring and complete installation of electric lighting at the Bradford Baths. Drawings may be seen, and specifications obtained, at the office of the City Architect, Town Hall, upon payment of 2l. 2s. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester."

DECEMBER 30.—**Belfast.**—RAILS, ETC.—The Belfast Harbour Commissioners invite tenders for the supply of about 100 tons of best rolled steel girder tramway rails, with fish-plates and bolts to suit. Specification, etc., and any further information required, may be obtained from the Harbour Engineer (Mr. W. Redfern Kelly, M.Inst.C.E.).

DECEMBER 30. — **Limerick.** — BOILER.—The County B.C. of Limerick Water Committee invite tenders for one steel Cornish boiler, 20 ft. long and 6 ft. diameter, for 80 lb. working pressure, to be delivered and set in their works at Reboge. Particulars may be obtained on application to Mr. J. J. Peacocke, B.A., B.E., City Surveyor, Town Hall, Limerick.

DECEMBER 30.—**Troon.**—MASONRY DAM AND WORKS AT LOCH BRADAN. CONDUIT FROM LOCH BRADAN TO COLLENAN RESERVOIR.—The T.C. of Troon invite tenders for the contracts in connexion with the providing of a supply of water from Loch Bradan. Copies of the specification, etc., may be obtained from the engineers, Messrs. J. & H. V. Eglesham, 24, Wellington-square, Ayr, on payment of 2l. 2s.

JANUARY 4. — **Great Berkhampstead.** — RECONSTRUCTION OF KING'S-ROAD BRIDGE.—The U.D.C. invite tenders for the removal of the existing iron superstructure, carrying the King's-road over the Grand Junction Canal, and the erection of a new steel bridge. The plans, etc., can be inspected, and form of tender obtained, at the offices of Mr. Edward H. Adey, Surveyor to the U.D.C., 177, High-street, Berkhampstead, Herts, or Messrs. Thomas & Thomas, civil engineers, 191, Edgware-road, Paddington, W.

JANUARY 5. — **Lewisham.** — CONSTRUCTIONAL IRONWORK.—The B.C. invite tenders for supplying and erecting the necessary iron and steel work, and galvanised-iron roofing, to cart-sheds at the Council's Depôt at Old-road, Lee. The drawings, etc., can be seen, and forms of tender obtained, at the Town Hall, Catford (Surveyor's Department).

JANUARY 5. — **London.** — SPANS.—The Bengal and North-Western Railway Company, Ltd., Directors invite tenders for the supply and delivery of forty through spans of 150 ft., as per specification to be seen at the Company's Offices, 237, Gresham House, Old Broad-street, London, E.C. For each specification a fee of 1l. will be charged, which cannot be returned.

JANUARY 12. — **Gloucester.** — BRIDGE WORKS.—Alternative tenders are required for the construction, erection, and removal of a temporary footbridge over the River Severn at the City Quay, Gloucester. Forms to be obtained from the City Surveyor, Guildhall, Gloucester.

FEBRUARY 22. — **Sydney.**—BOILERS.—Messrs. Preece & Cardew are instructed by the Sydney Municipal Council to invite tenders for the supply and erection in Sydney of five water-tube boilers, each capable of evaporating 24,000 lb. of water per hour, with economisers, etc. Specification, etc., may be obtained from Messrs. Preece & Cardew, 8, Queen Anne's-gate, Westminster, S.W., on payment of a deposit of 1l. 1s.

MISCELLANEOUS.

DECEMBER 22. — **Tendring Hundred.**—CARTAGE.—The Tendring Hundred Waterworks Company invite tenders for the loading of Mistley Quay and cartage therefrom of about 880 tons of cast-iron water pipes. Copies of specification, etc., may be obtained on application at the Company's Offices, Mistley, Manningtree, Essex.

DECEMBER 23.—**Dublin.**—FITTINGS AND FURNITURE.—The Board of Public Works, Ireland, invite tenders for the supply of fittings and furniture for the new Crown Post-office at Navan, Co. Meath. The plans and specification can be seen at Office of Public Works, Dublin, where forms of tender may be obtained.

DECEMBER 28.—**Wigan.**—TIMBER.—The Corporation invite tenders from local firms for the supply of timber required in the Borough Engineer's Department for a period of twelve months. Printed descriptions and forms of tender may be obtained on application to the Borough Engineer, King-street, West.

JANUARY 14. — **Dublin.** — SCAVENGING.—Sealed tenders for scavenging for the period March 1, 1909, to December 31, 1910, at the various barracks in Dublin, will be received at the office. Forms of tender, with list of barracks, can be obtained on application to the Officer Commanding Army Service Corps, Royal Barracks, Dublin. Headquarter Office, Lower Castle-yard, Dublin.

PAINTING, etc.

DECEMBER 21.—**Abertillery.**—PAINTING, ETC.—Tenders are invited for painting, varnishing, and colouring the old chapel and adjoining classrooms, Blaenau Gwent Baptist Church, Abertillery. Specification can be had on applying to Mr. Sam Rogers, Church-street, Abertillery.

DECEMBER 21.—**Glasgow.**—PAINTING.—The Corporation invite tenders for the painter work required at Cranstonhill Baths. Specifications, etc., may be had on application at the Office of Public Works, City Chambers, 64, Cochrane-street.

DECEMBER 23. — **Oldham.** — PAINTING, ETC.—The Finance Committee invite tenders for interior painting and decorating at Borough Treasurer's Offices, Greaves-street. Specification, etc., can be obtained at the office of the Borough Surveyor.

DECEMBER 23.—**South Dublin.**—PAINTING, ETC.—The Board of Guardians invite tenders for painting and other repairs to the following dispensaries, viz.:—South Earl-street, Castle-street, Grand Canal-street, Palmerston, Rathmines. Specifications for each dispensary, prepared by the Guardians' Clerk of Works, can be seen at the Clerk's Office, 1, James's-street, Dublin.

DECEMBER 30.—**Harrogate.**—COLOURING, ETC.—The Committee of Management of the Royal Bath Hospital and Rawson Convalescent Home, Harrogate, invite tenders for colouring, whitewashing, and varnishing. Specifications may be seen daily at the Hospital from 1 to 4 p.m.

* JANUARY 7. — **Kensington.** — PAINTING.—The Kensington Board of Guardians invite tenders for external painting work at the Workhouse, Marloes-road, Kensington. See advertisement in this issue for further particulars.

NO DATE. — **Newcastle.** — PAINTING.—Newcastle-upon-Tyne Education Committee invite tenders for the painting and cleaning of two Council schools at Christmas. For full particulars send stamped addressed foolscap envelope to the Secretary, Education Offices, Northumberland-road, Newcastle-upon-Tyne.

ROADS, SANITARY, AND WATER WORKS.

DECEMBER 21.—**Castlerahan.**—REPAIR OF WELL.—The R.D.C. invite tenders for the repairs, etc., of the public well at Dungimmon Upper, in accordance with the specification prepared by Mr. Michael Grace, jun., Council's Engineer, District Council Offices, Oldcastle Workhouse.

DECEMBER 21. — **Menston.** — DRAINAGE, ETC.—West Riding C.C. Education Committee invite tenders for drainage and asphalting, Menston Provided School. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1l. is required. Deposits must be posted addressed to the West Riding Treasurer, County Hall, Wakefield. A separate letter must be sent to the West Riding Architect asking for the quantities.

DECEMBER 21.—**West Holywell.**—SEWER.—Earsdon U.D.C. invite tenders for the providing and laying of about 131 lin. ft. of 3-in. cast-iron sewer under the etc., may be seen on personal application to the Surveyor, Mr. J. R. MacMillen, at the Council Offices, Shiremoor.

DECEMBER 22.—**Gateshead.**—STREET WORKS.—Tenders are invited for paving, etc., streets. Plans, etc., may be seen, and quantities obtained, at the office of Mr. N. P. Pattinson, Borough Engineer, Town Hall, Gateshead.

DECEMBER 22.—**Poole.**—MAKING-UP.—Tenders are invited for making-up:—(1) Uppleby-road and Phyldon-road; (2) Granville-road (public sewerage); (3) laying soil and surface-water sewers from the north end of Granville-road to Phyldon-road. Particulars may be obtained on application to the Borough Surveyor.

DECEMBER 23.—**Oldham.**—PRIVATE STREET WORKS.—The Surveyors' Committee invite tenders for the sewering, paving, and completing of passages. Plans, etc., can be seen, and quantities, etc., obtained, at the office of the Borough Surveyor.

DECEMBER 28. — **Pontypridd.** — STREET WORKS.—Pontypridd U.D.C. invite tenders for the private street contract No. 1, New Park-terrace, Treforest; contract No. 2, lane at rear of East-street. Plans, etc., may be seen, and forms of tender obtained, on application at the office of Mr. P. R. A. Willoughby, A.M.Inst.C.E., Engineer and Surveyor, upon receipt by Mr. J. Colenso Jones, Clerk to the Council, Municipal Buildings, Pontypridd, of a deposit of 1l. 1s. in respect of each contract.

DECEMBER 29.—**Hull.**—LAYING PIPES, ETC.—The Corporation invite tenders for the following works in connexion with the Power Station, namely:—Contract No. 1.—Laying 36-in. pipe from Prince's Dock to Power Station. Contract No. 2.—Pipes, fittings, etc. Contract No. 3.—Concrete foundation for 1,300 h.p. engine and dynamo. Forms of tender, etc., for Contracts Nos. 1 and 2 may now be obtained at the City Engineer's Office, and forms of tender, etc., for Contract No. 3 may be obtained on and after December 21. A limited number of blue prints of Contract No. 2 will be supplied upon payment of 2s. 6d., not returnable. Remittances to be made payable to Mr. T. G. Milner, City Treasurer.

DECEMBER 30.—**Ferryhill.**—SURFACE-WATER DRAINS.—The R.D.C. of Sedgefield invite tenders for the construction of about 1,234 yds. of earthenware or stoneware pipe surface-water drains at Merrington-lane, Dean Bank, Ferryhill. Drawings, etc., may be seen, and quantities obtained, on application to the Highway Surveyor, Mr. W. R. Plews, Council Offices, Sedgefield.

JANUARY 4. — **Letterkenny.** — LOUGH SALT WATER SCHEME.—The Letterkenny U.D.C. invite tenders for the carrying out of the Lough salt water scheme for supplying the Letterkenny Urban District and the Donegal District Asylum with water. Plans, etc., are deposited at the office of the Council, Main-street, Letterkenny.

* JANUARY 4.—**Streatham.**—MAKING-UP AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving part of Fallsbrook-road, Streatham. See advertisement in this issue for further particulars.

JANUARY 7.—**Claygate.**—ROADMAKING.—The U.D.C. of Esher and The Dittons invite tenders for making-up, etc., Station-parade, Claygate, about 400 ft. run, including works of metalling, etc. Specification may be seen at the Surveyor's Office, Brabant Villa, Thames Ditton, on payment of a deposit of 10s.

JANUARY 8. — **Northtawton.** — WATERWORKS.—The R.D.C. of Okehampton invite tenders for the construction of a concrete service reservoir and extension of water mains at Northtawton, Devon, according to plans prepared by Mr. Harry Geen, A.M.Inst.C.E. Plans, etc., may be inspected at the P.C. Office, Northtawton. Forms to be obtained at the R.D.C. Office, Okehampton.

JANUARY 9. — **Church.** — ROAD WORKS.—Church U.D.C. invite tenders for excavating, concreting, asphalting (with Limmer rock asphalt), curbing, and flagging of Church-street. Plans, etc., may be seen, and forms of tender, etc., obtained, on application to Mr. W. E. Wood, Surveyor, District Council Offices, Church.

JANUARY 28.—**Tunbridge Wells.**—PRIVATE STREET WORKS.—The Council of the Borough invite tenders for the paving, metalling, and making-up of Campbell-road and Culverden-avenue. Plans, etc., can be seen, and copies of the bill of quantities can be obtained, at the office of the Borough Engineer and Surveyor, Mr. W. H. Maxwell, A.M.Inst.C.E., Town Hall, Tunbridge Wells.

NO DATE. — **Bishopstoke.**—ROADS.—Making of a new road or roads on the Wedvills Estate, Bishopstoke. Forms of tender, etc., can be obtained of Mr. Frank Stubbs, auctioneer and estate agent, Bishops Waltham.

STONES, MATERIAL, AND STORES.

DECEMBER 21.—**Ramsbottom.**—FILTERING MEDIUM.—Ramsbottom U.D.C. invite tenders for about 550 cubic yds. of hard blast furnace slag for bacterial filters. For further particulars apply to Messrs. James Diggle & Son, civil engineers, Hind Hill-street, Heywood.

DECEMBER 21.—**Wigan.**—MATERIALS.—The Electric Light Committee of the Wigan Corporation invite tenders for the supply of cables, carbons, electric accessories, ironmongery, engine-room stores. Specifications and forms of tender may be obtained on application to Mr. J. Slevin, Electrical Engineer, Bradford-place, Wigan.

DECEMBER 21. — **Wigan.** — STORES.—Wigan Corporation Tramways Committee invite tenders for the supply of materials. Specification, etc., may be obtained on application to Mr. J. Slevin, Tramways Engineer and Manager, Bradford-place, Wigan.

DECEMBER 22. — **Farnham.** — GRANITE.—Farnham U.D.C. invite tenders for Clee Hill basalt, Penmaenmawr, Guernsey, and Quenast granite. Forms of tender may be had from Mr. R. W. Cass, the Council's Surveyor, Council Offices, South-street, Farnham, Surrey.

DECEMBER 24. — **Garforth.** — COLLIERY STORES.—The owners of Garforth Colliery invite tenders for iron, steel, iron and steel castings, nails, brattice cloth, indiarubber, timber, oils, greases, etc. Forms of tender may be obtained on application to the owners of Garforth Colliery, near Leeds.

DECEMBER 24. — **New Malden.** — HARDCORE AND GRAVEL.—Maldens and Coombe U.D.C. invite tenders for the supply and delivery of about 300 cubic yds. of brick or concrete hardcore and about 120 cubic

yds. of broken gravel for the Council's Recreation Ground, Station Estate, New Malden. Forms of tender can be obtained on application at the Surveyor's Department upon payment of 1*l.* 1*s.*

DECEMBER 24.—**New Shoreham.**—QUARTZITE.—The New Shoreham U.D.C. invite tenders for the supply of 450 cubic yds. quartzite, to be delivered to the Royal George Wharf, Shoreham. Sample to be sent with tender to Mr. Harold Brown, Clerk to the Council, Council Offices, Shoreham.

DECEMBER 29. — **London.** — MATERIALS.—Bombay, Baroda, and Central India Railway Directors invite tenders for the supply of (1) helical and volute springs; (2) wood screws, nails, etc. Forms, etc., can be obtained at offices of Mr. W. V. Constable, Secretary, Gloucester House 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 1*l.* 1*s.* each, which will not be returned.

DECEMBER 30. — **Bacup.** — GRANITE SETTS.—The Corporation invite tenders for about 3,000 tons of granite setts. Specifications, etc., may be had on application to Mr. W. H. Eice, A.M.Inst.C.E., Borough Engineer, Bacup.

DECEMBER 30. — **Erdington.** — STONE.—Erdington U.D.C. Highways and Buildings Committee invite tenders for the supply of broken stone during the year 1909. Specification, etc., may be obtained upon application at the offices of Mr. Herbert H. Humphries, Surveyor to the Council, Council House, Erdington.

JANUARY 2. — **Walmer.** — FLINTS.—The U.D.C. of Walmer invite tenders for surface picked field flints or clean, hard dug flints required for road repairs. Mr. F. W. Hardman, Clerk, 4 and 5, Park-street, Deal.

JANUARY 4. — **Cuckfield.** — ROAD MATERIALS.—The R.D.C. invite tenders for the supply of about 6,000 tons of broken granite, quartzite, and flints. Further particulars and forms of tender can be obtained on application to Mr. A. MacArthur, C.E., Surveyor, Council Offices, Haywards Heath.

JANUARY 4.—**Newport, Isle of Wight.**—CEMENT.—The Corporation invite tenders for the supply of best fresh Portland cement, of British manufacture (name of manufacturers to be stated). Further particulars may be obtained from the Borough Surveyor, 19, Quay-street, Newport, I.W.

* JANUARY 6.—**Hove.**—ARTIFICIAL STONE PAVING.—The Hove Corporation invite tenders for supplying artificial stone paving slabs for about two years. See advertisement in this issue for further particulars.

* JANUARY 19. — **Wandsworth.** — WORKS AND MATERIALS.—The Wandsworth B.C. invite tenders for execution of works and supply of materials for one, two, or three years. See advertisement in this issue for further particulars.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*TEACHER OF MANUAL TRAINING IN WOODWORK	Bd. of Educa., Auckland., N.Z.	170*l.* per annum.....	Jan. 15

PATENTS—*Continued from page* 689.

the bolt, and the current may be cut off first from the magnet which has withdrawn the catch to allow the catch to engage with and retain the bolt in its inward position, and immediately afterwards from the magnet which has drawn in the bolt.

28,502 of 1907.—G. L. PORTER: *Anti-concussion Pads and Devices, Shock Absorbers, and the like.*

This relates to an anti-concussion pad, shock absorber, or the like composed of resilient material, and comprising a foundation faced on one side with integral projections and at the opposite side with cells or chambers, and characterised by the fact that its cellular side is composed of a series of straight or curved parallel upstanding walls with spaces between, or by walls intersecting one another diagonally, transversely, or at any other angle, so as to form the cells or chambers, and in which either or each side of the pad may have a boundary wall upstanding from the foundation, and enclosing or forming a border to the cells or projections.

2,026 of 1908.—W. H. ATKINSON: *Window Fastener.*

This relates to a fastener for window-sashes, comprising a horizontal plate provided with screw-holes adapting it to be secured to the bottom rail of the top sash and connected by a hinge to a turnable plate provided with an oblong recess, and a horizontal plate provided with screw-holes adapting it to be secured to the top rail of the bottom sash, and having an upright rotatable locking piece adapted in one position to engage said recess longitudinally, so as to permit of said turnable plate being turned, and in another position to engage said recess transversely, so as to lock said turnable plate. The respective parts of the fastener are secured on the window-sashes in opposite relation and so that the hinge does not overhang the lower sash. The sashes are fastened by turning the turnable plate down so as to lie horizontally on the horizontal plate on the lower sash, and by then turning the locking piece so as to prevent the turnable plate from being turned up. The turnable plate and the plate on which it lies are made jointly of the thickness of the horizontal plate on the upper sash, so that the plates lie flush in locking position, and the locking piece is adapted to be engaged by the thumb and finger, and is mounted vertically on a stem having a cylindrical extension passing through the horizontal plate on the lower sash, and secured to this plate by being expanded at its lower end over a washer thereunder.

2,211 of 1908.—A. G. O'BRIEN: *Draught Excluder.*

This relates to a draught excluder, consisting of a strip of flexible material, such as paper, cardboard, canvas, linen, or other fabric, folded lengthwise into a shape of approximately Z-like construction, and which, when fixed by one of its edges to the door-jamb or other part on to which the door, window, or the like closes, stops draught from passing between the jamb and door or the frame and window.

4,953 of 1908.—W. H. BROWN: *Bond-ties for Walls and the like.*

This relates to a reinforcing bond of the character claimed in prior patent No. 19,949 of 1906, comprising a series of strips of expanded metal inserted either vertically or horizontally or passing up and down in every direction under, through, or between the courses or units of brick, stone, concrete, or other building material.

7,534 of 1908.—S. H. ADAMS: *Manhole, Gully, Grating, and other Road or Path Surface-boxes or Cover-frames.*

This relates to manhole, gully, grating, and other road or path surface-boxes or cover-frames, and consists in a modified form of construction of the surface-boxes or cover-frames described in prior specification No. 1,130 of 1907, which are provided with tops or flanges for the reception of wood blocks, or to hold the road material close to the frame. It is also known to form at the upper edge of the frame outwardly extending and downwardly curved or inclined flange, the upper surface of which is provided with closed intersecting ribs, so that the road metal will key thereto. According to the present invention, the radiating or other flanges, arranged close to each other so that the surface material of the road may set hard within the spaces between the said closely-set flanges, and so that the road material and the iron of the box or frame may be thus closely bound together, are curved or sloped from the rim of the frame downwards in the direction of the base plate, so that thus flanges or brackets may gradually disappear beneath the road surface. It will now be as though it were reinforced by the cast-iron flanges, with the result that the road material will not be torn away or worn down from the frame, which inclines, and cannot become a dangerous obstruction to traffic, as is the case with the ordinary vertical side-cover in a worn tread.

7,649 of 1908.—J. ESPIE: *Back or Brick for the Fire-boxes of Kitchen Ranges.*

This relates to a fire back or back brick for the fire-box of a kitchen range, made of fireclay or other like material, an inclined passageway being so made therein as to direct the fire gases from below the normal level of the fuel and above the normal level of the ashes against the front face of the boiler and around same to the ordinary boiler flue.

16,720 of 1908.—A. E. BERNASCONI, J. WATSON, and A. M. POOLEY: *Imitation Leaded Glass.*

This relates to imitation leaded glass, and has for its object the production of a composition for forming the outlines, which when fired will unite with the glass and resemble strongly-leaded outlining. According to the invention, the composition consists of a mixture of china clay, glass flux, and black enamel. With this is mixed a little adhesive, such as gum arabic, by which it can be caused to adhere to the glass. Outlining may be applied to both sides of the glass, which is then fired or baked in a kiln, causing the composition used for the lines to fuse. When fired the lines harden and unite with the glass.

15,084 of 1908.—E. A. HACKETT: *Locks, and Keys therefor.*

This relates to a lock having a hollow drill containing a lever normally protruded by a spring in such a manner as to prevent complete entrance of a key, a stronger pin to retract said lever when compressed by the insertion of a key having a rod within its barrel, a slidable disc for said rod to press on and having an opening to render too small a rod to pass it inert, and a fixed cover disc having an opening of such size as to prevent the entrance of a too large rod. In some cases the lever may be made knife-edged, so as to cut any key pressed against it. Spring-moved closing blades are provided for the keyhole which normally abut against each other, and which are located within the material of the door so as to be invisible under ordinary circumstances, and which are adapted to be opened or sprung apart by pressure of the key against and between them from without.

11,796 of 1908.—O. NETTLEFOLD: *Box Spanners.*

This relates to an ordinary wrench or ratchet spanner which is enabled to be conveniently applied to bolts or nuts which are inaccessible to the jaws of the wrench or spanner itself, and consists in providing a series of box sockets each adapted to fit the spanner and a different size of nut, and in conjunction therewith a lengthening piece or tube which can be interposed between the box sockets and the spanner. The box sockets and lengthening piece consist of steel tubes having their ends formed into hexagons, and reduced or enlarged, as the case may be, the end of the sockets and also of the lengthening piece, which is intended to be inserted in the socket or in the spanner, being preferably slotted longitudinally on two opposite sides to enable the hexagon end to be fitted snugly with its co-operating part.

8,698 of 1908.—A. E. STRICKLAND: *Sprayer or Sprinkler for Lawns, Gardens, Shower-baths, and the like.*

This relates to lawn sprayers or sprinklers, comprising the combination with a circular chamber having a central inlet at the bottom and a central outlet at the top of a thin plate or disc fastened to the walls or sides of the said chamber, and dividing the same into two compartments, and having a number of radial cuts around its edge or periphery, the edge of the said plate adjacent to the cuts being bent to form openings, by which the water, in passing from one compartment to the other, is caused to take on a rotary motion or swirl in the upper compartment.

9,174 of 1908.—P. PHIPPS: *Washer for Bolts and the like.*

This relates to washers for bolts and the like, and refers more particularly to the type of washers having prongs or projections on their inner faces, which prongs embed themselves or enter into a wood beam or the like, and prevent the rotation of the washer when a screw-bolt is passed through the centre of the washer and tightened up, and consists in a washer with a central aperture of square or similar formation, and having prongs formed around the aperture by bending the metal from the hole in a downward direction, and the combination therewith of other prongs formed by slitting the circumference of the washer and bending the metal downwards.

9,830 of 1908.—G. DEAR and C. DEAR: *Chimney-pot.*

This relates to a chimney-pot having a covered top with a lid formed therein, having a fork carried by an arm concentric to the hinge-pin, and connected to the top or outer side of lid.

12,880 of 1908.—H. H. HILLIER: *Fire-alarm System.*

This relates to a fire-alarm system, comprising a central station and a plurality of substations, each having a single-stroke alarm bell and capable of being severally and selectively connected with an alarm transmitter at the central station, which has a normally closed circuit, and each substation having an alarm transmitter in normally closed circuit with the alarm bell of such central station, so that a numerical signal may be audibly given in any selected substation, by which signal the location of a fire may be indicated.

14,505 of 1908.—P. SCHWICKART: *Lights for Pavements, Walls, Floors, Roofs, and the like.*

This relates to the glazed metal frames, commonly known as pavement or building "lights," which are placed in walls, floors, roofs, pavements, and the like for the purpose of admitting light, and more particularly to the type in which the glasses are provided with flanges or shoulders which support them on a metallic framework so that they project above and below the same, the spaces between the various glasses being filled in with cementitious material so as to secure the glasses in place in the framework, and consists in arranging the adjacent lenses in the framework in such a manner that their under sides form an under surface of glass of unbroken continuity, and the framework has side beams provided with spaced notches, into which fit the cross bars, the latter carrying the lenses, the framework being formed of T-iron side beams having the vertical members provided with spaced notches and cross bars of T-iron having their vertical members fitting the said notches, the horizontal member resting on the vertical members of the said side beams. The lens has a pyramidal bottom portion provided with a recess, the roof of the recess being convex and the inclined side walls being provided with prisms extending from the margin of the convex roof outwardly and downwardly to the base of the bottom portion, the base having upwardly and outwardly bevelled edges. The top portion of the lens is conical, and forms shoulders with the pyramidal bottom portion.

15,036 of 1908.—P. J. O'TOOLE: *Apparatus for Safely Keeping Open Doors, Windows, and the like.*

This relates to a door fastening on the principle of a door-chain attachment, in which the movable member is a solid shank, unweakened by notches or openings except the terminal notch, whereby, no matter what the angle of the door may be in a rough sea, or no matter what wind there may be against the window, the door or window is held rigidly in position, and cannot be further opened from the outside, and a series of preferably conical holes along the slot and a movable member of a preferably conical portion of the pin taking into them and filling them closely, whereby the door can be held open at any one of a number of different degrees of overture, and yet it will hold tight, so that there will be no movement at this point.

SOME RECENT SALES OF PROPERTY: ESTATE EXCHANGE REPORT.

December 7.—By GEO. C. HILL.

Chiswick.—Clifton-gdns., f.g.r. 20*l*., reversion in 85 yrs. £455

December 8.—By ROGERS, CHAPMAN, & THOMAS.

South Kensington.—3, Redcliffe-st., u.t. 58 yrs., g.r. 10*l*. 10s., y.r. 60*l*. 400

By JOSEPH STOWER.

South Kensington.—Childs-st., f.g.r. 28*l*., reversion in 43 and 45 yrs. 850

3 to 10, Childs-st., f., area 7,200 ft., w.r. 218*l*. 8s. 2,630

By S. WALKER & SON.

Old Ford.—Locton-st., f.g.r. 18*l*., reversion in 61 yrs. 360

By F. WARMAN.

Hampstead.—148, Stanhope-st., u.t. 29 yrs., g.r. 2*l*. 10s., y.r. 55*l*. 400

By A. E. WILLIAMS & Co.

Camden Town.—Little Randolph-st., l.g.r. 29*l*. 5s., u.t. 14½ yrs., g.r. 8*l*. 150

December 9.—By HENRY H. COLLIER & MADGE.

Acton.—High-st., f.g.r. 40*l*., reversion in 93 yrs. 1,200

Finsbury Park.—26, Isledon-rd., u.t. 34 yrs., g.r. 6*l*. 10s., e.r. 40*l*. 250

By A. ROBERTSON.

Camberwell.—135 and 137, New Church-rd., f., w.r. 59*l*. 16s. 450

By DOUGLAS YOUNG & Co.

Camberwell, — Waterloo-st., etc., f.g. rents 155*l*. 11s., reversion in 74 and 75 yrs. 3,180

Kennington.—12, Renfrew-rd., u.t. 19 yrs., g.r. 3*l*., e.r. 36*l*. 240

December 10.—By H. BEVAN.

Chelsea.—8, Uverdale-rd., u.t. 69 yrs., g.r. 6*l*. 10s., w.r. 72*l*. 10s. 425

By CHESTERSON & SONS.

Kensington.—Russell-rd., f.g. rents 60*l*., reversion in 53 yrs. 1,705

By WALTER CORB.

Sydenham.—5, Sydenham-av., u.t. 75 yrs., g.r. 25*l*., e.r. 95*l*. 360

By MARTIN, WHITE, & Co.

Dulwich.—75 to 81 (odd), Lordship-la. (s.), u.t. 58 yrs., g.r. 42*l*., y. and e.r. 183*l*. 1,130

Kingsland. — 2 and 4, Tottenham-rd., u.t. 10 yrs., g.r. 20*l*., y.r. 70*l*. 170

511, Kingland-rd. (s.), u.t. 10 yrs., g.r. 12*l*., y.r. 65*l*. 150

Westminster.—Vincent-st., l.g.r. 44*l*. 10s., u.t. 11 yrs., g.r. nil 165

Selhurst.—Dagmar-rd., f.g. rents 13*l*., reversion in 97 yrs. 320

By STIMSON & SONS.

Southwark. —7A, Collinson-st., u.t. 40¾ yrs., g.r. 4*l*. 10s., y.r. 60*l*. 250

Sutton.—138, High-st. (s.), u.t. 45½ yrs., g.r. 7*l*. 10s., y.r. 60*l*. £640

Walworth.—21, 23, and 25, Wansey-st., u.t. 34 yrs., g.r. 15*l*., y.r. 114*l*. 800

Battersea.—47 and 49, Castle-st., u.t. 68 yrs., g.r. 10*l*. 10s., w.r. 78*l*. 455

Deckenham.—15, Mackenzie-rd., u.t. 75½ yrs., g.r. 4*l*. 10s., p. 170

Brixton.—23 and 55, Mayall-rd., u.t. 60 yrs., g.r. 10*l*. 10s., w. and e.r. 93*l*. 4s. 425

Peckham.—9, Graces-rd., u.t. 50½ yrs., g.r. 5*l*. 10s., y.r. 32*l*. 230

Hammersmith.—11, Church-rd., u.t. 50½ yrs., g.r. 3*l*., w.r. 31*l*. 4s. 225

By FAREBROTHER, ELLIS, & Co.

South Lambeth.—Wandsworth-rd., f.g.r. 13*l*., reversion in 25 yrs. 800

Hartington-rd., f.g.r. 9*l*. 9s., reversion in 24 yrs. 810

Camellia-st., f.g.r. 9*l*., reversion in 24 yrs. .. 600

218 and 220, Wandsworth-rd., f., e.r. 66*l*. 16s. 750

244 and 246, Wandsworth-rd. (s.), f., e.r. 95*l*. 10s. 1,000

7 and 9, Richmond-pl. (s.), f., e.r. 67*l*. 12s. .. 525

29 to 39 (odd), Brooklands-rd., f., e.r. 187*l*. 4s. 1,260

41 to 51 (odd), Brooklands-rd., f., e.r. 187*l*. 4s. 1,480

92 to 102 (even), Hartington-rd., f., w.r. 205*l*. 8s. 1,490

Bermondsey.—44 to 47, Wickham-pl., and 1 to 6, Wickham-ct., f., w.r. 137*l*. 16s. 725

Ilford, Essex.—Little Heath, The Haw Bush, b.h., f., y.r. 35*l*. 1,460

Little Heath, Essex.—Freehold building land, 1½ acres, p. 400

Billet-rd., market garden land, 3 a. 0 r. 34 p., f. 360

Laindon, Essex.—Doves Farm, 75 a. 3 r. 23 p., f., y.r. 40*l*. 1,540

Clapham.—Grove-rd., f.g. rents 23*l*. 5s., reversion in 72 yrs. 540

By KNIGHT, FRANK, & RUTLEY.

West Ham.—Lancaster-rd., f.g.r. 18*l*., reversion in 79 yrs. 440

Ealing.—Kenilworth-rd., f.g.r. 16*l*., reversion in 87 yrs. 400

The Park, f.g.r. 16*l*., reversion in 85 yrs. 400

Finchley.—Duke's-av., f.g. rents 130*l*., reversion in 95 yrs. 3,190

St. Pancras.—Euston-rd., l.g.r. 66*l*., u.t. 39½ yrs., g.r. 11*l*. 905

Hampstead.—Belsize-pk., l.g. rents 135*l*., u.t. 44 yrs., g.r. 5s. 2,365

5, Elizabeth-mews, u.t. 54½ yrs., g.r. 3*l*., y.r. 26*l*. 180

Kensington.—8 and 9, Radley-mews, u.t. 62 yrs., g.r. 6*l*., e.r. 70*l*. 255

Marylebone. — 3, Orchard-st. (s.), u.t. 24 yrs., g.r. 5*l*., y.r. 185*l*. 2,275

Ealing.—11, The Mall (s.), u.t. 68 yrs., g.r. 12*l*., y.r. 155*l*. 2,650

Maida Vale.—Portsdown-rd., l.g. rents 115*l*. 10s., u.t. 68½ yrs., g.r. 40*l*. 1,400

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; l.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.		
Best Stocks	1	6	0	per 1000	alongside, in river.
Picked Stocks for Facings	2	10	0	"	delivered
Flettons	1	4	0	"	at railway depôt.
Best Fareham Red	3	12	0	"	" "
Best Red Pressed Ruabon Facing..	5	0	0	"	" "
Best Blue Pressed Staffordshire ...	3	15	0	"	" "
Do. Bullnose	4	0	0	"	" "
Best Stourbridge Fire Bricks	3	14	0	"	" "
GLAZED BRICKS.					
Best White and Ivory Glazed Stretchers	10	7	6	"	" "
Headers	9	17	6	"	" "
Quoins, Bullnose, and Flats	13	17	6	"	" "
Double Stretchers	15	17	6	"	" "
Double Headers...	12	17	6	"	" "
One Side and two Ends	16	17	6	"	" "
Two Sides and one End.....	17	17	6	"	" "
Splays, Chamferred, Squints..	15	10	0	"	" "
Best Dipped Salt Glazed Stretchers	10	7	6	"	" "
Headers	9	17	6	"	" "
Quoins, Bullnose, and Flats	13	17	6	"	" "
Double Stretchers	15	17	6	"	" "
Double Headers ...	12	17	6	"	" "
One Side and two Ends	16	17	6	"	" "
Two Sides and one End.....	17	17	6	"	" "
Splays, Chamferred, Squints.	15	10	0	"	" "
Second Quality White and Dipped Salt Glazed	1	5	0	"	less than best.

BRICKS, &c. (*continued*).

	s.	d.	
Thames and Pit Sand	6	6	per yard, delivered.
Thames Ballast	5	0	" "
Best Portland Cement	28	0	per ton, "
Se Ground Blue Lias Lime	19	0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt.....	1	8½	" "
PORTLAND STONE (20 ft. average)—			
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf...	2	1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf ...	2	2½	" "
Ancaster in blocks.....	1	10	per ft. cube, deld. rly. depôt.
Beer "	1	6	" "
Greenshill "	1	10	" "
Darley Dale in blocks ...	2	4	" "
Red Corsehill "	2	2	" "
Closeburn Red Freestone	2	0	" "
Red Mansfield "	2	4	" "
YORK STONE—*Robin Hood Quality.*	s.	d.	
Scappled random blocks.	2	10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.).....	2	3	per ft. super. "
6 in. rubbed two sides ditto, ditto	2	6	" "
3 in. sawn two sides slabs (random sizes).....	0	11½	per ft. cube, deld. rly. dep.
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	" "
1½ in. to 2 in. ditto, ditto	0	6	" "
HARD YORK—			
Scappled random blocks	3	0	"
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super. "
6 in. rubbed two sides ditto	3	0	" "
3 in. sawn two sides slabs (random sizes).....	1	2	" "
2 in. self-faced random flags	0	5	" "

SLATES.

In.	In.		£	s.	d.	
20×10	best blue Bangor		13	2	6	per 1000 of 1200 at r.d.
20×12	"	"	13	17	6	" "
20×10	first quality,,		13	0	0	" "
20×12	"	"	13	15	0	" "
16×8	"	"	7	5	0	" "
20×10	best blue Portmadoc		12	12	6	" "
16×8	"	"	6	12	6	" "
20×10	best Eureka unfading green...		15	17	6	" "
20×12	"	" ...	18	7	6	" "
18×10	"	" ...	13	5	0	" "
16×8	"	" ...	10	5	0	" "
20×10	permanent green		11	12	6	" "
18×10	"	"	9	12	6	" "
6×8	"	"	6	12	6	" "

TILES.

	s.	d.	
Best plain red roofing tiles...	42	0	per 1000, at rly depôt
Hip and Valley tiles ...	3	7	per doz. "
Best Broseley tiles	50	0	per 1000 "
Do. Ornamental tiles	52	6	" "
Hip and Valley tiles ...	4	0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards) ...	57	6	per 1000 "
Do. Ornamental do.....	60	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	0	" "
Best Red or Mottled Staffordshire do. (Peakes).....	51	9	per 1000 "
Do. Ornamental do.	54	6	" "
Hip tiles	4	1	per doz. "
Valley tiles.....	3	8	" "
Best "Rosemary" brand plain tiles	48	0	per 1000 "
Best Ornamental tiles.....	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles.....	3	8	" "
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 "
Do. pressed.....	47	6	" "
Do. Ornamental do.....	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles.....	3	6	" "
Staffordshire (Hanley) Reds or Brindled tiles.....	42	6	per 1000 "
Hand-made sand-faced.....	45	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	6	" "

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.....	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6...	0	10	0	less than 7 in. and 8 in.			
Deals: seconds.....	1	0	0	less than best.			
Battens: seconds.....	0	10	0	" "			
2 in. by 4 in. and 2 in. by 6 in....	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in...	8	10	0	...	9	10	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	"			

WOOD (*continued*).

BUILDING WOOD (*continued*)—	At per load of 50 ft. £ s. d.		£ s. d.
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	...	5 0 0
Seconds	4 0 0	...	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	...	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	...	3 10 0
Swedish balks	2 10 0	...	3 0 0
Pitch-pine timber (30 ft. average)	4 0 0	...	4 15 0

JOINERS' WOOD.	At per standard.				
White Sea: first yellow deals, 3 in. by 11 in.	24 0 0	...	25 0 0		
3 in. by 9 in.	22 0 0	...	23 0 0		
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	...	18 0 0		
Second yellow deals, 3 in. by 11 in.	18 10 0	...	20 0 0		
" " 3 in. by 9 in.	17 10 0	...	19 0 0		
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	...	14 10 0		
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	...	5 0 0		
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	...	12 0 0		
Petersburg first yellow deals, 3 in. by 11 in.	21 0 0	...	22 10 0		
Do. 3 in. by 9 in.	18 0 0	...	19 10 0		
Battens	13 10 0	...	15 0 0		
Petersburg second yellow deals, 3 in. by 11 in.	16 0 0	...	17 0 0		
Do. 3 in. by 9 in.	14 10 0	...	16 0 0		
Battens	11 0 0	...	12 10 0		
Third yellow deals, 3 in. by 11 in.	13 0 0	...	14 0 0		
Do. 3 in. by 9 in.	12 10 0	...	14 0 0		
Battens	10 0 0	...	11 0 0		
White Sea and Petersburg—					
First white deals, 3 in. by 11 in.	14 10 0	...	15 10 0		
" " 3 in. by 9 in.	13 10 0	...	14 10 0		
Battens	11 0 0	...	12 0 0		
Second white deals, 3in. by 11 in.	13 10 0	...	14 10 0		
" " 3 in. by 9 in.	12 10 0	...	13 10 0		
Battens	10 0 0	...	11 0 0		
Pitch-pine: deals	18 0 0	...	21 0 0		
Under 2 in. thick extra	0 10 0	...	1 0 0		
Yellow pine—First, regular sizes	44 0 0	upwards,			
Oddments	32 0 0	"			
Seconds, regular sizes	33 0 0	"			
Oddments	28 0 0	"			
Kauri Pine—Planks, per ft. cube	0 3 6	...	0 5 0		
Dantzig and Stettin Oak Logs— Large, per ft. cube	0 3 0	...	0 3 9		
Small " "	0 2 6	...	0 2 6		
Wainscot Oak Logs, per ft. cube	0 5 6	...	0 6 0		
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	...	0 0 9½		
¾ in. do. do	0 0 7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	...	0 1 0		
Selected, Figury, per ft. super. as inch	0 1 6	...	0 2 6		
Dry Walnut, American, per ft. super. as inch	0 0 10	...	0 1 0		
Teak, per load	17 0 0	...	22 0 0		
American Whitewood Planks, per ft. cube	0 4 0	...	0 5 0		
Prepared Flooring, etc.—	Per square.				
1 in. by 7 in. yellow, planed and shot	0 13 6	...	0 17 0		
1 in. by 7 in. yellow, planed and matched	0 14 0	...	0 18 0		
1¼ in. by 7 in. yellow, planed and matched	0 16 0	...	1 0 0		
1 in. by 7 in. white, planed and shot	0 12 0	...	0 14 6		
1 in. by 7 in. white, planed and matched	0 12 6	...	0 15 0		
1¼ in. by 7 in. white, planed and matched	0 15 0	...	0 16 6		
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	...	0 13 6		
1 in. by 7 in. " "	0 14 0	...	0 18 0		
¾ in. by 7 in. white " "	0 10 0	...	0 11 6		
1 in. by 7 in. " "	0 12 9	...	0 15 0		

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.		£ s. d.
Rolled Steel Joists, ordinary sections	7 0 0	...	7 10 0
Compound Girders, ordinary sections	9 0 0	...	10 0 0
Steel Compound Stanchions	11 0 0	...	12 0 0
Angles, Tees, and Channels, ordinary sections	9 0 0	...	10 0 0
Flitch Plates	9 0 0	...	9 10 0
Cast Iron Columns and Stanchions including ordinary patterns	7 10 0	...	8 10 0

METALS.

IRON—	Per ton, in London. £ s. d.		£ s. d.
Common Bars	8 10 0	...	9 0 0
Staffordshire Crown Bars, good merchant quality	8 15 0	...	9 5 0
Staffordshire "Marked Bars"	10 10 0	...	—
Mild Steel Bars	8 15 0	...	9 5 0
Hoop Iron, basis price	9 5 0	...	9 10 0
" " Galvanised	17 0 0	...	—

(*And upwards, according to size and gauge.)

Sheet Iron Black— Ordinary sizes to 20 g.	9 15 0	...	—
" " 24 g.	10 15 0	...	—
" " 26 g.	12 5 0	...	—
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 0 0	...	—
Ordinary sizes to 22 g. and 24 g.	15 10 0	...	—
" " 26 g.	16 10 0	...	—
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18 0 0	...	—
" " 22 g. and 24 g.	18 10 0	...	—
" " 26 g.	20 0 0	...	—
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 10 0	...	—
" " 22 g. and 24 g.	14 15 0	...	—
" " 26 g.	16 5 0	...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 0 0	...	—
Best Soft Stee Sheets, 22 g. & 24 g.	13 0 0	...	—
" " " 26 g.	15 0 0	...	—
Cut Nails, 3 in. to 6 in.	10 10 0	...	11 0 0

(Under 3 in., usual trade extras.)

LEAD, &c. Per ton, in London.

	£ s. d.		£ s. d.
LEAD—Sheet, English, 3lb. and up.	16 15 0	...	—
Pipe in coils	17 5 0	...	—
Soil pipe	19 5 0	...	—
Compo pipe	20 5 0	...	—
ZINC—Sheet—			
Vieille Montagne ton	26 10 0	...	—
Silesian	26 5 0	...	—
COPPER—			
Strong Sheet per lb.	0 1 0	...	—
Thin " "	0 1 1	...	—
Copper nails "	0 0 10	...	—
Copper wire "	0 0 10	...	—
BRASS—			
Strong Sheet "	0 0 11	...	—
Thin "	0 1 0	...	—
TIN—English Ingots "	0 1 5	...	—
SOLDER—Plumbers' "	0 0 7	...	—
Tinmen's "	0 0 6½	...	—
Blowpipe "	0 1 0	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d.	per ft.	delivered.
" fourths	1¾d.	"	"
21 oz. thirds	3d.	"	"
" fourths	2¼d.	"	"
26 oz. thirds	4d.	"	"
" fourths	3d.	"	"
32 oz. thirds	4¾d.	"	"
" fourths	4¼d.	"	"
Fluted Sheet, 15 oz.	3½d.	"	"
" 21 oz.	4¼d.	"	"

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

⅛ Hartley's	2¼d.	per ft.	delivered.
¼ "	2¾d.	"	"
½ "	2¾d.	"	"
Figured, Oxford Rolled, and "Oceanic" Glass, white	3¼d.	"	"
" tinted	5d.	"	"
OTHER GLASS—			
"Arctic" Glass, white	3¼d.	"	"
" " tinted	5d.	"	"
" " Ruby and opalescents	1s.	"	"

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes per gallon	0	1 11
" " in barrels "	0	2 0
" " in drums "	0	2 3
Boiled " in barrels "	0	2 3
" " in drums "	0	2 6
Turpentine in barrels "	0	2 6
" in drums "	0	2 8
Genuine Ground English White Lead per ton	21	0 0
Red Lead, Dry "	20	0 0
Best Linseed Oil Putty per cwt.	0	7 0
Stockholm Tar per barrel	1	12 0

VARNISHES, &c. Per gallon.

	£ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 15 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 9
French and Brush Polish	0 10 6

TENDERS.

*** Owing to the Christmas holidays, the *Builder* will be published next week on Thursday instead of Friday. All communications for the Editor must therefore reach our office by first post on Wednesday morning.

* Denotes *accepted*. † Denotes *provisionally accepted*.

BANSTEAD.—For additional day-room accommodation, Banstead Asylum, for the London County Council:—
G. Parker, Peckham* £1,780 19 2

BANSTEAD.—For foul laundry machinery at Banstead Asylum, for the London County Council:—
W. Summerscales & Sons, Ltd.* £463 0 0

BARKING TOWN.—For private street works in Howard, Clarkson, and Shaftesbury roads, for the Urban District Council. Mr. C. F. Dawson, Surveyor, Public Offices, Barking:—
W. J. Jackson, Broadway, Plaistow* £852 4 10

BEXHILL.—For making up Collington-avenue with tar-macadam, and for other works, for the Corporation. Mr. G. Ball, Borough Surveyor, Town Hall, Bexhill. Quantities by Borough Surveyor:—

Road Maintenance, &c., Co., Ltd.	£1,702	0	5
Constable, Hart, & Co.	1,592	4	8
Tarmac, Ltd.	1,360	17	3
S. Carey, Bexhill*	1,356	17	9

BILSTON.—For the installation of heating apparatus on the low-pressure hot-water system in the boys', girls', and infants' departments of the Bull Holes Council School, for the Education Committee. Messrs. Bailey & McConnal, architects, Bridge-street, Walsall. Quantities by architects:—
W. H. Manley, Wolverhampton* £790 0 0
[This includes four departments, i.e., upper mixed, boys', girls', and infants'.]

BOARD OF EDUCATION TENDERS.

ACCEPTED FOR CLEANING THE INTERIORS OF LONDON COUNTY COUNCIL SCHOOLS.

Barmondsey.—Townsend-street.
W. Sayer & Son £238 0 0

Webb-street.
J. Appleby & Sons 256 0 0

Bethnal-green, N.E.—Columbia-road.
F. Bull 247 0 0

Bethnal-green, S.W.—Wilmot-street.
Vigor & Co. 350 10 0

Bow and Bromley.—Smeed-road.
Franks & Simons 240 1 5

Camberwell, N.—Cator-street.
W. Young 257 0 0

Ilderton-road.
H. Groves 245 0 0

Deptford.—Childeric-road.
W. Bailey 283 0 0

Fulham.—The Peterborough.
R. Triggs 249 0 0

William-street.
J. & W. Drake 434 0 0

Greenwich.—Grove-street.
W. Bailey 213 0 0

Hackney, S.—London-fields.
H. Willmott 331 0 0

Haggerston.—Haggerston-road.
Woollaston Bros. 295 0 0

Hammersmith.—Kenmont-gardens.
Ford & Walton, Ltd. 290 0 0

Holborn.—Princeton-street.
A. J. Staines & Co. 233 0 0

Islington, N.—Upper Hornsey-road.
Barrett & Power 324 0 0

Islington, S.—Station-road.
J. C. Mather 286 0 0

Islington, W.—Gifford-street.
Barrett & Power 395 0 0

Kensington, N.—Buckingham-terrace.
W. Chappell 285 0 0

Oxford-gardens.
Bristow & Eatwell 260 10 0

Mile-end.—Single-street.
Griggs & Son 223 0 0

Newington, W.—Rockingham-street.
J. & C. Bowyer, Ltd. 239 0 0

Peckham.—Ivydale-road.
H. Line 249 0 0

Ruby-street.
W. Akers & Co., Ltd. 207 0 0

Sumner-road.
W. Young 230 0 0

St. Pancras, E.—The Stanley.
A. J. Staines & Co. 388 0 0

St. Pancras, N.—Mansfield-road.
Ford & Walton, Ltd. 244 0 0

Southwark, W.—Lant-street.
J. & C. Bowyer, Ltd. 231 0 0

Walworth.—Surrey-square.
W. King & Son 232 0 0

BOURNEMOUTH.—For roadmaking and sewering on the Charminster Park Estate, for the Corporation. Mr. F. W. Lacey, Borough Engineer and Surveyor, Municipal Offices, Bournemouth:—
G. Troke, Winton, Bournemouth* £1,240

COLCHESTER.—For the erection of the Colchester Royal Grammar School, Colchester. Messrs. J. T. Newman, Jacques, & Round, architects. Quantities by Mr. J. W. Start:—

Parkington & Son	£11,000 0 0
McCormick & Son	9,498 0 0
Parren & Son	9,400 0 0
A. E. Symes	9,397 0 0
Johnson & Co.	9,335 0 0
F. J. Coxhead	8,948 0 0
Chambers	8,940 0 0
Wallis & Sons	8,844 0 0
Mason & Son	8,830 0 0
Grimwood & Son	8,796 0 0
W. Lawrence & Son	8,788 0 0
Dobson & Son	8,775 0 0
C. Roper	8,759 0 0
F. Bennett	8,725 0 0
Pattinsons	8,684 0 0
Grimwood & Son	8,441 0 0
Spencer, Santo, & Co.	8,431 0 0
A. E. Farr	8,407 14
F. & E. Davey	8,307 17 1
Everrit & Son	8,192 0 0
S. A. Kenny	8,184 0 0
T. J. Ward	8,130 0 0
Beaumont	8,109 0 0
G. E. Saunders, Dovercourt*	7,940 0 0

[Architect's estimate, £8,000.]

COLNEY HATCH.—For alterations to laundry machinery, for the London County Council:—
W. Summerscales & Sons, Ltd.* £479 10 0

CULTER (Scotland).—For cemetery extension works, for the Parish Council of Petercultter. Messrs. Jenkins & Marr, C.E. and architects, 16, Bridge-street, Aberdeen:—
J. Clark, Petercultter, Aberdeen* £456 11 0

DAGENHAM.—For sewerage works at Dagenham, for the Romford Rural District Council:—

S. W. Harrison & Co.	£3,699 14 0
W. & C. French	3,194 4 2
D. T. Jackson	2,875 14 2
Wilson, Border, & Co.	2,678 14 0
W. H. Hyde & Co.	2,628 0 0
R. Stroud, Ilford*	2,498 1 10
T. Free & Sons	2,459 0 0

[Engineer's estimate, £2,547 11s.]

ENFIELD.—For making up Holtwhite-avenue and Manor-road, for the Urban District Council. Mr. R. Collins, Surveyor, Public Offices, Enfield:—

Holtwhite-avenue.

P. J. Fitzgerald	£221 11 6
T. Adams	197 0 0
T. Free & Sons	186 8 6
E. Greenfield	175 0 0
E. J. Betts	165 0 0
Jennings & Grenfell	163 0 0
Seymour & Hanson, Bush Hill Park*	155 15 0

Manor-road.

P. J. Fitzgerald	£953 13 0
T. Adams	705 0 0
T. Free & Sons	630 0 0
Jennings & Grenfield	618 0 0
Seymour & Hanson	598 4 0
E. J. Betts	595 0 0
E. Greenfield, Bush Hill Park*	544 0 0

EXMOUTH.—For the construction of new roads and sewers, Littleham Cross, adjoining Salterton-road. Mr. G. Beavis, architect and surveyor, Exmouth:—

A. Taylor	£857 18 4	A. Hayman, Exmouth*	£565 0 0
Cooper & Son	810 4 10	Hooper & Stooke‡	518 15 0
W. H. Perry	728 19 0		
Grounds & Newton	670 0 0		

‡ Withdrawn.

FENTON.—For the erection and construction of small engine-house and pump-well, sludge draining beds, and other incidental works in connexion therewith at their sewage disposal works at Sideway, for the Urban District Council. Mr. S. A. Goodall, Surveyor, Town Hall, Fenton:—

W. Williams	£1,280 0 0
F. Barke	1,163 5 4
S. Wilton, jun.	1,100 0 0
Sanders & Torrance, Hanley*	1,078 0 0

FLEET (Hants).—For street works, Broad-street, for the Urban District Council:—

W. H. Wheeler & Co.	£962 8 6	J. Hill	£617 14 4
G. A. Frank	919 18 2	T. Lamport & Son	580 9 2
J. Douglas	789 0 0	W. Hoar, Fleet, Hants*	510 8 9
Ripley, Strong, & Co.	690 15 0		

GALWAY.—For erecting new fever hospital, for the Guardians. Mr. A. Cowlishaw, Architect, Brentwood, Galway. Quantities by Architect:—

T. Griffin & Sons	£9,398 0	A. Hull & Co.	£8,575 0
W. O'Flaherty	9,199 0	T. Emerson, Devon-place, Galway*	8,390 0
F. Lydon	8,750 0		
Collen Bros.	8,600 0		

GUILSFIELD.—For new schoolroom, dwelling-house, and stabling, joining the C.M. Chapel, Geuffordd. Mr. G. Dickens-Lewis, architect, Talbot-chambers, Shrewsbury:—

Wall & Becke	£470 0 0	W. Griffiths & Son	£375 0 0
W. H. Thomas	420 10 6	I. Jones, Llanfechain*	367 0 0
J. Pigctock	393 0 0		

HARROGATE.—For private street works, Back-road, at rear of Nos. 1 to 37, College-road, for the Corporation. Mr. F. Bagshaw, Borough Engineer and Surveyor, Harrogate:—

C. H. Dickenson, Mayfield House, Forest-lane, Starbeck, Harrogate* £161 0 0

HULL.—For alterations and additions to Craven-street Schools, for the Education Committee of the Corporation. Mr. J. H. Hirst, City Architect, Town Hall, Hull. Quantities by Mr. J. Watson, Bowlalley-lane, Hull:—

G. H. Panton	£1,800 0 0
H. T. Arnott	1,735 7 0
J. T. Levitt	1,678 0 0
M. Harper	1,567 0 0
G. Jackson & Sons	1,552 14 9
Hull General Builders, Ltd.	1,548 9 0
P. T. Kettlewell, Trinity-street*	1,497 0 0

[All local firms.]

LEATHERHEAD.—For making up of Magazine-place, for the Urban District Council. Mr. J. E. Smales, Surveyor, Council Offices, Leatherhead:—

Potter & Co.	£356 12 9	H. M. Blaker	£309 0 0
E. & E. Iles	347 0 0	W. H. Wheeler & Co.	£271 4 9
James & Co.	313 9 6		
Free & Sons	309 13 1	J. May, Ashtead*	259 7 0

[Surveyor's estimate, £300.]

LEYTON.—For the extension of the municipal offices. Messrs. J. T. Newman & Jacques, Architects. Quantities by Messrs. C. Stanger & Son:—

Patman & Fotheringham	£10,786 0 0
Johnson & Co.	10,706 16 11
Webster & Son	10,322 0 0
Mattock & Parsons	9,980 0 0
C. E. Skinner	9,975 0 0
Appleby & Son	9,882 0 0
Hyde & Co.	9,812 0 0
Spencer, Santo, & Co.	9,663 0 0
Kirk & Randall	9,540 0 0
W. King & Son	9,404 0 0
W. J. Bloxham	9,375 0 0
B. E. Nightingale	9,327 0 0
Lovatt, Ltd.	9,206 0 0
A. N. Coles	9,079 2 11
W. Lawrence & Son	9,056 0 0
F. & E. Davey	9,052 1 8
Lowe & Co.	9,030 0 0
Roberts & Co.	8,995 0 0
A. E. Symes	8,975 0 0
F. & A. Willmott	8,957 0 0
J. & J. Dean	8,947 19 2
H. C. Horswill	8,925 5 0
H. J. Carter	8,816 0 0
F. & G. Forster	8,786 0 0
Henson & Son	8,763 15 3
F. J. Coxhead	8,730 0 0
W. Wallis	8,706 16 10
W. J. Maddison	8,535 0 0
J. W. Jerram	8,525 0 0
North Bros., Stratford*	8,486 19 2

[Architects' estimate, £8,000.]

LEYTON.—For the erection of Sybourn-street Elementary School, first block for 320 boys and 320 girls. Messrs. J. T. Newman & Jacques, Architects. Quantities by Messrs. J. Rider Hunt & Co.:—

Johnson & Co.	£13,208 0 0
King & Son	12,258 0 0
Appleby & Son	11,900 0 0
Spencer, Santo, & Co.	11,709 0 0
F. & G. Forster	11,541 0 0
H. C. Horswill	11,502 0 0
J. & J. Dean	11,470 0 0
Rowley & Son	11,465 0 0
McCormick & Son	11,421 0 0
A. N. Coles	11,368 12 1
Lowe & Co.	11,335 0 0
Brand, Pettit, & Co.	11,309 0 0
W. H. Hyde & Co.	11,198 0 0
J. W. Jerram	11,154 0 0
North Bros.	11,139 4 9
A. E. Symes	11,086 0 0
Patman & Fotheringham	11,049 0 0
B. E. Nightingale	11,029 0 0
H. J. Carter	11,016 0 0
W. J. Maddison	10,922 0 0
Kirk & Randall	10,896 0 0
Henson & Son	10,819 19 2
F. & E. Davey	10,685 0 0
F. J. Coxhead, Leytonstone*	10,647 8 0

[Architects' estimate, £10,500.]

LLANGADOCK.—For water supply and renewing drainage system, Abermarlais Park:—

Woodcock & Riley, 73, Weaman-street, Birmingham	£715 0 0

LONDON.—For alterations and additions at the Stoney-lane Depôt, for the Corporation:—

J. Mowlem & Co., Ltd.	£1,100 0 0
Patman & Fotheringham, Ltd.	993 0 0
W. Shurmur & Sons, Ltd.	963 0 0
W. Smith & Son	950 0 0
W. Nash	929 0 0
W. J. Fryer & Co.*	859 0 0

LONDON.—For proposed rebuilding of 1 to 13, Bell's-buildings, Fleet-street, E.C. Mr. Fredk. W. Foster, architect, 41, Bedford-row. Quantities by Mr. Ernest T. Verity:—

J. S. Carmichael	£22,791	Sheffield Bros.	£22,193
W. Downs	22,761	Sabey & Son	21,973
M. Patrick & Son	22,687	J. S. Minter*	21,807
Allen & Co.	22,350		

LONDON.—Accepted for works at Nos. 13 and 14, Montagu-square. Mr. Fredk. W. Foster, architect, 41, Bedford-row:—

J. Kirkby	£1,873

LONDON.—For repairs and alterations at fire stations, for the London County Council:—

Kingsland-road Fire-station.—Repaving Appliance-room Floor.

Ashby & Horner	£108 0 0
L. H. & R. Roberts	102 0 0
F. & F. J. Wood	98 0 0
Marchant & Hirst	95 0 0
W. Shurmur & Sons, Ltd.	90 0 0
W. Griffiths & Co., Ltd., 35-39, Hamilton House, Bishopsgate-street Without, E.C.*	89 4 0

Cherry-garden-street Fire-station.—Repointing Brickwork.

E. Triggs	£163 0 0
Holloway Bros. (London), Ltd.	160 0 0
F. & H. F. Higgs	148 0 0
Higgs & Hill, Ltd., Crown Works, South Lambeth, S.W.*	114 0 0

LONDON.—For electric-lighting Camden Town Fire-station, for the London County Council:—

W. Leonard & Co.	£275 0	Tredegar & Co., 56, Victoria-street, S.W.*	166 10
C. Pullan	235 0		
W. J. Fryer & Co.	193 0		
Nursey & Marr	175 0		

[The Chief Engineer's estimate of the cost of the work is £202.]

LONDON.—For electric-lighting Crossness Outfall for the London County Council:—

E. J. Webster, Stratford, E.*	£205 0 0
Hart Accumulator Co., Ltd.‡	200 0
Premier Accumulator Co., Ltd.	150 0 0
Electrical Power Storage Co., Ltd.	110 0 0

‡ £7 10s. a ton, about.

LONDON.—For the structural work, etc., required at the Victoria-embankment generating-station in order to adapt the premises for use as offices, for the London County Council:—

E. Lawrance & Sons	£1,331	Spencer, Santo, & Co., Ltd.	£1,122
Holloway Bros. (London), Ltd.	1,210	G. Munday & Sons	1,080
J. & C. Bowyer, Ltd.	1,193	F. & H. F. Higgs*	1,080
Higgs & Hill, Ltd.	1,154		

LONDON.—Removal and re-erection of iron buildings from Clapham to Essendine-road, Paddington, for the London County Council Education Committee:—

J. Harrison & Co.	£230

LONDON.—For cleaning the "Ben Jonson" School, Stepney, for the London County Council:—

G. Barker	£772	F. & T. Thorne, Isle of Dogs*	£597
Newell & Lusty	700	McCormick & Sons	590
E. Proctor & Sons	614		

LONDON.—For reconstruction of tramways from Hackney-road, via Mare-street and Lower and Upper Clapton roads, to Stamford-hill (for roadwork, etc.), for the London County Council:—

—	Tramway Works. £ s. d.	Paving Works. £ s. d.	Total. £ s. d.
Dick, Kerr, & Co. Ltd., Cannon-street, E.C.*	78,777 9 8	3,837 17 3	82,715 6 11
W. Manders	80,353 7 10	3,980 3 9	84,333 11 7
A. M. Coles	81,686 10 7	2,869 3 0	84,555 13 7
J. Mowlem & Co., Ltd.	84,495 12 6	4,169 0 11	88,664 13 5

[The Chief Engineer's estimates, comparable with the tenders, are £84,090 15s. 8d. for tramway works, and £3,887 0s. 1d. for paving works, or a total of £87,977 15s. 9d.]

Dick, Kerr, & Co., Ltd., to sublet to the under-mentioned firms (or to such other persons or firms as may be approved by the Engineer under the contract) the following portions of the work, namely:—(1) To the Anderson Foundry Co., Ltd., or Wilsons, Pease, & Co., Ltd., the yokes; (2) to Doulton & Co., Ltd., or Buller's, Ltd., the insulators; (3) to Bayliss, Jones, & Bayliss, or Guest, Keen, & Nettlefold, Ltd., the tiebars, bolts, etc.; (4) to the Associated Portland Cement Manufacturers, Ltd., the cement; (5) to Harrison & Co. (Lincoln), Ltd., and Hadfield's Steel Foundry Co., Ltd., the plough boxes and drain boxes; and (6) to the Forest City Electric Co., Ltd., the bonds.

LONDON.—For heating, Redman's-road School, Stepney, for the London County Council:—

J. Grundy	£897 0	Hayward Bros. & Eckstein, Ltd.	£659 10 0
J. Boyd & Sons	820 0	Brightside Foundry & Engineering Co., Ltd.	651 0 0
Wontner, Smith, Gray, & Co.	812 0	Moorwood Sons & Co., Ltd.	630 0 0
Ashwell & Nesbitt, Ltd.	774 0	G. & E. Bradley	611 0 0
C. P. Kinnell & Co., Ltd.	736 0	W. G. Cannon & Sons, Ltd.	599 18 9
J. Yetton & Co.	708 0	Comyn Ching & Co., Ltd.	598 10 0
Palowkar & Sons	699 0	Cannon & Hefford	591 0 0
R. H. & J. Pearson, Ltd.	689 0	J. Defries & Sons, Ltd., Houndsditch*	583 0 0
J. Gray	685 0		
H. J. Cash & Co., Ltd.	674 0		
Wenham & Waters, Ltd.	666 0		

LONDON.—For enlargement of Vauxhall Fire-station, for the London County Council:—

F. & H. F. Higgs	£1,846	J. Barker & Co., Ltd.	£1,687
F. & T. Thorne	1,800	J. & C. Bowyer, Ltd.	1,627
G. Munday & Sons	1,760	Spencer, Santo, & Co., Ltd., Earl-street, Westminster, S.W.*	1,597
H. L. Holloway	1,740		
W. Smith & Sons	1,739		
J. Carmichael	1,729		
A. Roberts & Co., Ltd.	1,702		

[The Architect's revised estimate of the cost of the work is £1,680.]

LONDON.—Taking up and relaying floors at Silwood-street School, Rotherhithe, for the London County Council Education Committee:—

W. Johnson & Co.	£149

LONDON.—For heating London County Council secondary school, Clapham, for the London County Council:—

Korting Bros., Ltd.	£1,856 13 9
H. J. Cash & Co., Ltd.	1,800 0 0
Strong & Collings, Ltd.	1,740 6 3
W. G. Cannon & Sons, Ltd.	1,699 5 3
J. Gray	1,630 0 0
Brightside Foundry & Engineering Co., Ltd.	1,579 0 0
Stevens & Sons	1,566 0 0
J. F. Phillips & Son	1,459 0 0
Comyn Ching & Co., Ltd., Castle-street, Long Acre*	1,449 0 0

[The estimate of the Architect (Education) comparable with the tenders is £1,425.]

MAESTEG.—For erecting two semi-detached villas, Neath-road. Mr. Frank B. Smith, architect, Port Talbot:—

E. King	£745	T. Thomas & Son, Maesteg*	£715

PONDERS END.—For the erection of an infants' department, with central hall, at the Southbury-road Schools, Ponders End, and of additions to existings buildings, for Enfield Education Committee. Mr. G. E. T. Lawrence, architect, 22, Buckingham-street, Adelphi, W.C. Quantities by Young & Brown:—

—	— £	Addition for Electric Lighting. £	Total. £
Abbot & Charlton	12,082	296	12,378
Brand, Pettitt, & Co.	9,776	340	10,116
J. Chessum & Sons	10,331	342	10,673
Clark & Sons	9,759	334	10,093
F. & B. Davey, Ltd.	9,768	346	10,114
J. & W. Drake	9,830	334	10,164
R. & E. Evans	8,998	327	9,325
Fairhead & Sons*	9,358	329	9,687
Fitch & Cox	11,694	394	12,088
F. & G. Foster	9,989	337	10,326
G. Frost & Son	13,355	459	13,814
G. Henson & Son	9,690	330	10,020
W. H. Hyde & Co.	10,405	372	10,777
H. Knight & Co.	9,208	340	9,548
E. Lawrance & Sons	9,793	330	10,123
W. Lawrence & Sons	9,544	325	9,869
Mattock & Parsons	9,878	346	10,224
A. Monk	9,250	382	9,632
B. E. Nightingale	9,881	337	10,218
J. Parren & Son	10,900	399	11,299
Patman & Fotheringham	9,748	340	10,088
Perry Bros.	10,177	325	10,502
W. J. Renshaw	10,439	327	10,766
Rowley Bros.	9,422	372	9,794
C. E. Skinner	11,933	360	12,293
Spencer, Santo, & Co.	9,996	350	10,346
J. Young & Son	10,175	335	10,510

[It was resolved that the tenders from firms who had not filled in the schedule of wages and hours, as required on the tender form, should not be considered.]

PENMORFA.—For water supply works, for Glaslyn Rural District Council. Mr. Richard Owen, engineer, Portmadoc:—

Mason: D. Williams, Penmorfa* .. } £239 15 0
Joiner: R. Roberts, Penmorfa* .. }

PLUMBLAND.—For building a cloakroom at Grammer School. Mr. Richard Berwick, Lawson-street, Aspatria:—

W. Robinson	£108 0 0
T. Maxwell, Bothel*	107 0 0

RIPLEY (Derbyshire).—For sewage disposal works at Northern Sewage Farm, for the Urban District Council. Mr. H. Walker, Consulting Engineer, King-street, Nottingham. Mr. G. W. Bird, Surveyor to the Council, Town Hall, Ripley, Derby:—

Trentham	£4,549 11 6
E. Coupe	4,543 4 8
J. Mackay	4,188 11 7
S. W. Harrison & Co.	4,147 15 2
Hawley	4,021 16 5
A. Palmer	3,922 0 0
Firth & Co.	3,865 10 5
A. J. Cottle	3,832 11 1
Lane Bros.	3,812 16 2
A. & H. Price & Co.	3,800 0 0
Beighton & Berry	3,743 0 0
H. E. Buckley	3,721 5 3
Harris & Hunt	3,711 12 3
Doleman	3,681 7 2
Watson	3,650 0 0
Hutchinson	3,640 0 0
J. & J. Warner	3,634 0 0
S. Johnson	3,602 2 10
C. E. Cox & Co.	3,600 15 10
Harper	3,580 0 0
W. Cunliffe	3,578 6 8
H. Bennett	3,419 1 5
W. Norman	3,402 19 8
W. W. Bateman	3,390 18 11
G. T. Tomlinson, Derby*	3,350 0 0

SANDHURST.—For the erection of Sandhurst Council School, for Kent Education Committee, in accordance with the plans and specification prepared by the Committee's Architect, Mr. W. H. Robinson:—

J. Gregory	£2,370 0	G. Potter	£2,148 0
Strange & Sons, Ltd.	2,360 0	J. A. Davison	2,097 0
T. & J. Tickner	2,290 0	G. & F. Penn	2,048 0
Barden & Head	2,281 0	H. Dixon	2,045 15
Hayward & Paramor	2,198 0	W. Shippam	2,035 0
J. Lonsdale	2 198 0	J. Podger & Sons	1,993 0
R. A. Lowe & Co.	2,190 0	C. E. Skinner	1,988 0
G. Frost & Son	2,181 0	L. Edwards	1,950 0
Kirk & Randall	2,167 0	S. Wise, Seabrook-road, Hythe*	1,926 0

SENGHENYDD.—For street works, for Caerphilly Urban District Council. Mr. A. O. Harpur, Surveyor, Caerphilly:—

G. Watts	£1,505 2 0
L. R. Owen	1,502 19 5
Davies & Lloyd	1,272 0 10
A. G. Collins & Co.	1,248 1 10
Hamilton & Millard	1,207 8 1
G. Rutter	1,194 12 6
W. J. Morgan	1,177 2 2
J. Williams, Abertridwr*	1,164 0 10

SHEVIOCK.—For laying stoneware sewers, etc., at Crafthole, for St. Germans Rural District Council. Mr. J. A. Andrews, surveyor, Southville, Saltash:—

J. Budge, 20, Clarence-place, Stonehouse, Plymouth	£86 7 6

SOUTHEND-ON-SEA. — For private streets. Mr. Elford, Borough Engineer, Southend-on-Sea:—

—	Eastwood-lane.	Pier-hill.	Ronald Park-avenue.	Tintern-avenue.
	£	£	£	£
Fry Bros	1,714	868*	504	826
Parsons & Parsons	1,685	1,130	455*	762
W. Buxton	1,931	—	467	758*
W. Iles	1,655*	980	470	765

STOCKCROSS.—For extension of sewer, for Newbury Rural District Council. Mr. W. Church, Inspector and Surveyor, Newbury:—

H. T. Elms	£107 9	Collier & Catling‡	£88 13
G. Elms, jun., Stockcross*	105 0		

[Surveyor's estimate, £108.]

‡ No allowance made for maintaining roadway.

TETTENHALL.—For sewer construction, Broad-lane, Bradmore, and Castlecroft-road, Finchfield, for the Urban District Council. Mr. H. McCarter, Surveyor, Upper Green, Tettenhall:—

J. Owens, St. Mark's-road, Wolverhampton £646

WEST HAM.—For the cleansing, repair, and painting of schools, for the Education Committee. Mr. W. Jacques, A.R.I.B.A., 2, Fen-court, London, E.C.:—

Elmhurst School.
C. J. Kemp, West Ham* £285 10 0

St. Antony's Boys' School.
A. Webb, Stratford* 77 10 0

Holy Trinity School.
W. J. Clemens, Stratford* 125 0 0

St. Francis's School.
A. S. Symes, Stratford* 102 0 0

St. Joachim's School.
Chapman & Sturton, West Ham* .. 95 10 0

West Ham Church School.
Woollaston Bros., West Ham* 130 0 0

WEST RUNTON.—For drainage works, for Erpingham Rural District Council. Mr. A. F. Scott, F.S.I., 24, Castle-meadow, Norwich:—

Sewer.—Contract No. 1.

	Doulton's Grouted Joint.	Ordinary Joint.
Kaye Bros.	£2,961 11 8	£2,819 3 0
Spading & Sons	2,556 9 7	2,428 9 7
W. A. Bardell	2,328 0 0	2,310 0 0
Wilkinson	2,419 0 0	2,204 0 0
R. C. Brebner & Co.	2,296 14 0	2,089 15 0
T. H. Blyth	2,123 14 0	2,023 14 0
F. Mitchell & Son	2,247 0 0	—
Edwards & Co.	2,193 2 5	1,971 2 9
Howes	2,141 0 0	1,851 0 0
J. W. Neale	2,050 0 0	1,828 0 0
J. O'M. Dixon	2,040 13 4	1,818 13 8
Corbett & Co.	2,028 14 0	1,804 1 7
R. M. Parkinson	1,997 0 0	1,747 0 0
P. Wilson & Co., Wendling*	1,827 3 9	1,607 3 9

Outfall.—Contract No. 2.

T. H. Blyth	£599 14 0	Corbett & Co.	£387 14 6
Wilkinson	592 0 0	Edwards & Co.	349 16 7
Spalding, Sons, & Co.	496 19 0	Howes	349 13 0
R. M. Parkinson	457 0 0	R. C. Brebner & Co.	323 4 0
Kaye Bros.	452 3 0	P. Wilson & Co., Wendling*	301 12 11
W. A. Bardell	420 0 0	J. O'M. Dixon	297 5 11
F. Mitchell & Son	407 15 0		

WILLINGTON (Beds).—For detached cottage, for Mr. C. Wilsher. Messrs. Underwood & Kent, F.A.S.I., architects:—

W. Haynes	£487 0	A. E. Pryor	£369 10
G. Wrycroft & Sons	415 0	Melcombe & Son, Bedford*	363 0
W. W. Norman	409 9		
W. Nichols	408 0		

WOLVERHAMPTON. — For drainage scheme at cottage houses, for the Guardians. Mr. F. T. Beck, architect, Darlington-street, Wolverhampton:—

J. Hickin & Sons, Willenhall* £550 0 0

WOLVERHAMPTON.—For alterations and additions to the Nurses' Home at the Workhouse, Heath Town, for the Guardians. Mr. A. W. Worrall, architect, North-street Wolverhampton. Quantities by Mr. H. Vale, Wolverhampton:—

H. Gough & Sons, Wolverhampton* £3,975 0 0

WOLVERHAMPTON. —For alterations at the late School Board Offices, Stafford-street, for the Guardians. Mr. T. H. Fleming, architect, Queen-square, Wolverhampton:—

J. Herbert, Wolverhampton* £528

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